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THE
ELEMENTS OF MEDICINE;
OR,
A TRANSLATION
OF THE
ELEMENTA MEDICINÆ BRUNONIS.

WITH LARGE
NOTES, ILLUSTRATIONS, AND COMMENTS.

BY THE AUTHOR OF THE ORIGINAL WORK.

IN TWO VOLUMES.

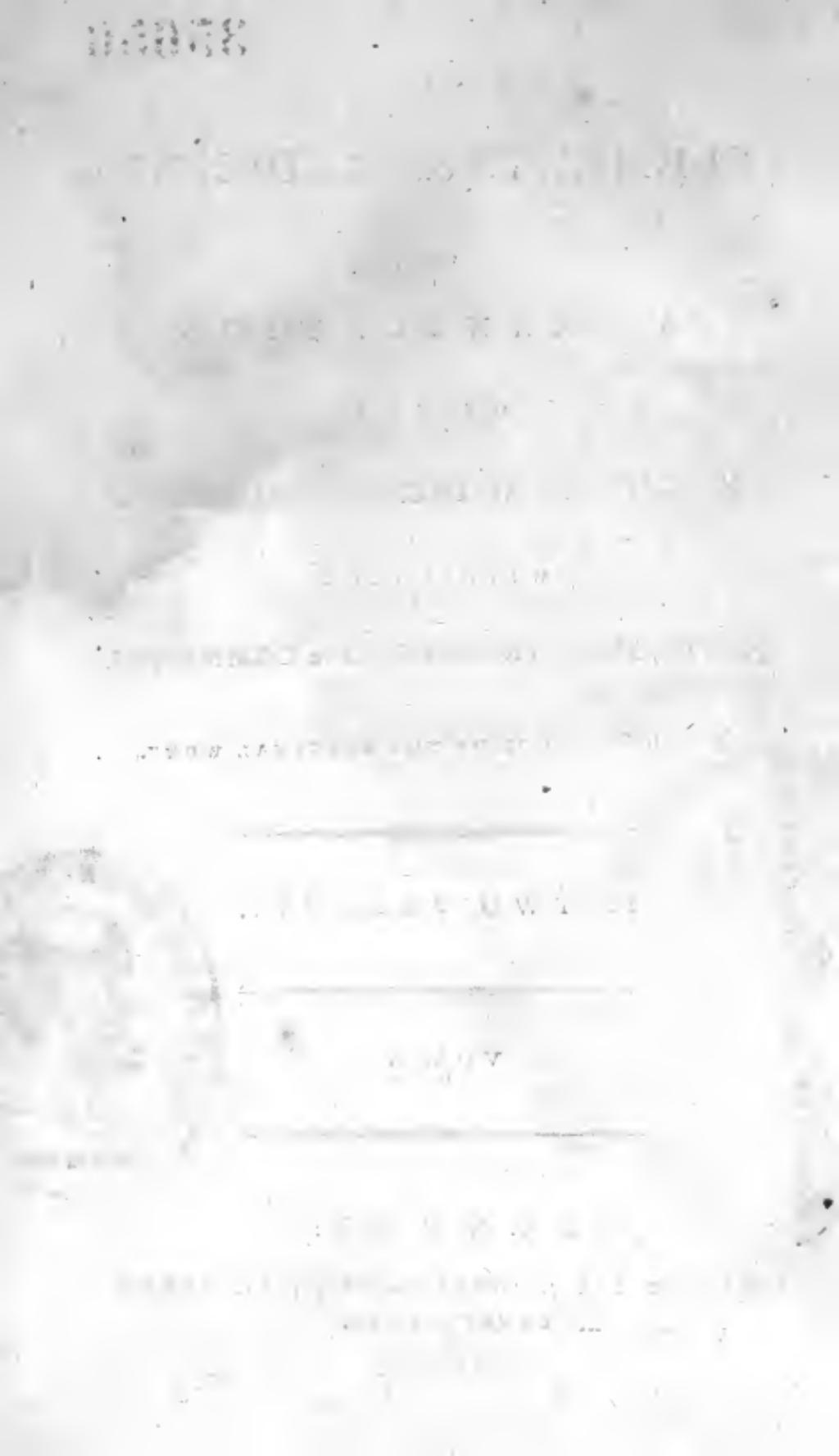
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P R E F A C E

TO THE

ORIGINAL WORK.

BY the Author of this work more than twenty years were wasted in learning, teaching, and diligently scrutinizing every part of medicine. The first five past away in hearing others, studying what he had heard, implicitly believing it, and entering upon the possession as a rich and valuable inheritance. *His mode of employment* the next five years, was to explain more clearly the several particulars, to refine and give them a nicer polish. During the next equal space of time, because no part of it had succeeded to his mind, he became cold upon the subject, and, with many eminent men, *even* with the vulgar themselves, to deplore the healing art as altogether uncertain and incomprehensible. *All this time passed away* without the acquisition of any advantage, and of that, which of

all things is the most agreeable to the mind, the light of truth ; and so great, so precious, a portion of the fading and short-lived age of man, was lost. It was only betwixt the fifteenth and twentieth year of *his studies*, that, like a traveller in an unknown country, wandering in the shade of night, after losing every trace of his road, a very obscure gleam of light, like that of the first break of day, dawned upon him.

Thirteen years ago (*a*), when he was going in the thirty-sixth year of his age, he fell into his first fit of the gout. For many years before he had lived well, with the exception of having confined himself to a diet more sparing than usual a few months before the arrival of the disease (*b*). In about six weeks the disease finished its course, and did not return till six years after, and not even

(*a*) Four years must be added now, it being that time since the second volume of the *Elementa* was published, that is, seventeen years since the author's first fit of the gout. At this very time from hard walking in very hot weather, to inspect the beauties and majesty of Hampton-Court, he had a slight attack, which gave him no sort of trouble, never hindered him from business, and which he repelled in less than thirty-six hours.

(*b*) It was about six months.

then,

then, but in consequence of unusual low living for several months (*d*). He was in the vigour of his age, and, excepting the taint of the gout, and some debility, brought on by his unusual abstinence, his habit was good. The disease, according to an old theory among physicians, was said to depend upon plethora and excessive vigour; vegetable aliment was enjoined, wine was forbidden, and the careful execution of *that plan of cure* was promised to be rewarded with no return of the disease. A whole year past in a strict adherence to this regimen. In the course of that space of time, *instead of never having a return of the disease*, he experienced no less than four fits, most violent, most painful, and of a very great duration: *In short*, the whole year, except fourteen days, was divided between limping and excruciating pain.

If an over-proportion of blood and excess of vigour was the cause of the disease, *according to the general theory just now mentioned*, it became next with him a subject of enquiry, how such distressing symptoms were to be explained; his reflections were, why

(*d*) between five and six.

the disease had not made its *first* appearance twelve or fifteen years before, *at a time* when there was *in reality* more blood and vigour in the system (e), and why it only came on after an abatement of diet both considerable in degree and duration; why so great an interval of time, during which he had returned to his usual full diet, had intervened betwixt the first fit, and these recent ones; and, why the disease had twice, almost instantaneously, come on after the change of *full nourishing* diet into a sparing one. At last the solution of this question was made out by the interposition of one of greater magnitude, in the following interrogatories:—What is the effect of food, drink, and similar supports of life? They produce strength. What is their effect afterwards? Always less and less. What is it towards the end of life? They are so far from giving any more

(e) The blood is made from the food and is in proportion to the quantity, quality, and completeness of its digestion. Now, before each of his last fits for the time specified in the text, as well as during the whole course of the attacks of the second year, his food had been almost solely vegetable, and, therefore, was not suited to produce enough, much less an excessive quantity, of blood, and the digestion was also more imperfect.

strength, that they evidently prove weakening. Nay, the very same powers, by which life was at first supported, at last put an end to it, commonly through the intervention of disease.

As diseases first, and death after, in general happen in the way *that has been just now explained*, not from want, but an over-abundance of the supports of life, he found, however, that the cause was debility, and saw that it was not debilitating (*f*), but strengthening, powers that were to be thought upon as remedies. To this sort of debility he thought proper to give the name of indirect. Such for two years was the success of his invigorating plan (*g*), that at the end of that *space of time* he only underwent a very slight fit, which did not amount to a fourth part of any of the former ones (*b*). Now no physician will deny, that the recurrence of such a disease *as the gout*, which had

(*f*) according to the common practice of evacuation and starving,

(*g*) which he immediately after the last mentioned reflections and queries carried into execution,

(*b*) the fit that happened at the thirty-sixth year of his age, and the four severe ones, that attacked him about six years after, all within the course of the same year.

made four attacks in one year, would have been more frequent than in that proportion the next two years, had the same method of cure been continued; nor will any one think the addition of two fits every year too much. The mild fit was four times less in degree than the more violent ones. Multiply, therefore, twelve by four, and, according to that computation, the proportion of alleviation of the disease will amount to a reduction of eight and forty to one. As, during the first year, he had made use of vegetable food alone, so, during these two years, his only food was of the land animal kind, and of the most nutrient quality. *Of the latter*, his choice was directed to the best in kind, *without any other precaution than* being sparing in the quantity he used (i). A young gentleman, who lived with him, and had laboured under a very severe asthma, in consequence of *submitting to the same* treatment, suffered only one fit at the end of the *same* two years, instead of *experiencing*

(i) He found most kinds of fish, whether from the sea or fresh water, nearly as debilitating as vegetable matter, when solely or chiefly relied upon for a meal.

one every day, as he had done upon the common treatment.

Afterwards, to remove an opinion, that had been often insisted on, of the gout not depending upon debility, because inflammation accompanied it; little doubting that the inflammation itself depended on debility, he subjected the question to experiment. He invited some friends to dinner, and by the use of certain stimulants used in their presence (*k*), recovered the most perfect use of that foot, with which, before dinner, he could not touch the floor for pain. By this fact he saw, that not only the gout itself, but the inflammation accompanying it, was asthenic (*l*). And he found, afterwards, such inflammations affecting the throat in the putrid, in the gangrenous sore throat, and the joints in rheumatalgia, or that rheumatism which depends upon debility, and is improperly denominated chronic rheumatism (*m*), and supposed, if there be any truth

(*k*) These are mentioned in Dr. Jones's Enquiry.

(*l*) that is, depending on debility.

(*m*) The word rheumatism, as implying a similarity of the disease to the true acute rheumatism, should be rejected, and this term taken, from Sauvage, substituted in its place.

in that supposition, to attack the brain in the end of typhus, to be also asthenic.

As the gout affects the alimentary canal, and especially the stomach, and proceeds in its course with distressing circumstances similar to those *that happen* in dyspepsia (*n*) ; being desirous to know if there was any affinity betwixt it and them, he observed that they, as well as it, depended on debility, and yielded to stimulant remedies. Nay, he afterwards found for certain, that all the spasmodic, all the convulsive, diseases of the same canal (*o*), and nearly all the diseases of children, were of the same stamp.

Continuing his investigation of the same spasmodic and convulsive diseases, when they occupy the organs of voluntary motion ; he discovered that their nature was also the same *in kind*, but *only* greater in degree ; as *they are exemplified* in the spasms and pains, *that occur* in various parts of the external *surface* of the body, and in epilepsy (*p*), and in tetanus themselves. And by that means he

(*n*) or indigestion,

(*o*) or, first passages, comprehending the passage to the stomach, that organ itself, and the intestines below it,

(*p*) or the falling sickness,

discerned, that a vast number of affections, in which, upon the supposition of their being inflammatory, no limits had been set to the use of the lancet, *instead of arising from an over-proportion of blood and excessive vigour, or any other such cause*, depended upon an under-proportion of that fluid, and other causes of debility, and were to be cured, not by bleeding, nor any other evacuations (*q*), but by filling *the vessels*, and restoring the strength of *the whole system*.

At first, for the purpose of removing fits of the gout, he went no farther than the use of wine, and other strong drink, of a similar *operation*, and nourishing food, that is seasoned meat, and kept the use of the more powerful remedies in reserve. But, of late (*r*), his surprizing success in the use of the latter, has enabled him to find in opium, and certain other stimuli, the secret of repelling the fits of the gout as often as they returned, and, at the same time, re-establishing the sound healthy state, a secret that has hitherto been so much wanted and despaired

(*q*) such as vomiting, purging, sweating, blistering, glistering, &c.

(*r*) that is, now, for many years past.

of. This he has often effected both in himself and in other persons. It is now going the third year, and near the end of it (*f*), since he has *always* been able to prevent all return of the disease.

Taught by similar instances of actual practice, he found for certain that bleeding discharges, which are called haemorrhages, do not depend on plethora and vigour, but upon penury of blood and debility arising from any other source, and therefore did he reject them from the number of sthenic diseases (*t*), among which they had been arranged in the first edition of the text book, reserving a place for them among the asthenic diseases in the second volume of that work. For he saw, that bleeding, various *other* evacuations, abstinence, cold, and sedatives, as they are called, proved hurtful; and that the stimulant plan of cure alone, was salutary. Even wine and brandy, which had been thought so hurtful *in those diseases*, he found the most powerful of all other re-

(*f*) now the seventh,

(*t*) Sthenic diseases, as will be afterwards explained, are such as depend upon an excessive application of the several powers that otherwise produce health.

medies in removing them. Upon finding that a certain fact; he learned, that in all the diseases, in which others had thought there was abundance of blood, there was a deficiency of it, and that from the defect of that and of other stimulants the *real* cause of *the diseases* was debility; and stimulants, given in proportion to the degree of the cause, the *proper* remedies.

In consequence of the light that thus beamed in from the practice, he found, that the cause and cure of fevers, both intermit- tent and continued, was the same as those already mentioned.

Gradually led, as it were by the hand of nature, around the whole circle of asthenic diseases (*u*), he thoroughly perceived, that they all depended upon the same cause, that is, debility, that they were all to be removed by the same kind of remedies, to wit, stimulants (*x*), and that neither their cause nor their cure differed but in degree.

(*u*) diseases of debility.

(*x*) Wherever the word stimulant is used without a particular qualification of its degree, the degree is understood to be greater than that required in the healthy state, as will afterwards more fully be explained.

With

With respect to sthenic diseases, the nature of either the cause or cure of which nobody had observed ; he had long ago understood that inflammation in them, as well as the other symptoms, were not, as had been universally believed by Systematics, the cause, but the effect : and that the inflammation arose from the cause, i. e. the diathesis (*y*), and not even from it, unless very violent. In fine, he experienced in his own person, that catarrh was not produced by cold according to the common opinion, but by heat, and the other known stimuli, and was removed by cold and other debilitating powers. By which discovery he was led to form a proper judgment of the catarrhal symptoms in the measles : In which he found, that a very great man who had improved the cure of sthenic diseases, but never attained to any knowledge of the asthenic, had been misled, by the alexipharmac physicians. And, as these symptoms are the most dangerous part of the disease, he was right in supposing, that the proper cure of them very much interested that of the whole disease. The consequence of which was that it came out a demonstrated fact,

(*y*) or habit,

that

that the refrigerating antiphlogistic plan of cure was of equal service in the measles and small-pox.

In sthenic diseases he illustrated the cause, enlarged the plan of cure, enriched the knowledge of both, explained and reduced the whole to a certain principle; he distributed all general diseases into two forms, a sthenic and an asthenic one (z). He demonstrated that the former depended upon excess, the latter upon deficiency of exciting power; that the former were to be removed by debilitating, the latter by stimulant, remedies; that the hurtful powers which excited either were the remedies of the other, and the contrary; and that they acted by the same operation with the powers which produce the most perfect health, differing from them only in degree. He extended the same doctrine to plants. He laid down a principle which is illustrated and confirmed by all the parts of the detail, and *itself* reflects illustration and confirmation upon every one of them. *Lastly*, he put the question whether the medical art,

(z) Sthenic signifies an excess, asthenic a defect, of invigorating power.

thitherto conjectural, incoherent, and in the great body of it false, was not at last, reduced to a demonstrated science, which might be called the science of life (a).

(a) That question has been answered in the affirmative by every one who had been at due pains to understand the doctrine.



P R E F A C E

TO THE

T R A N S L A T I O N.

A PRESSING, and very general, demand for an English translation of the *Elementa Medicinæ*, made several years before the publication of the second edition of that work, and successively repeated with an increasing importunity ever since; a desire of spreading the knowledge of a doctrine, which had exhibited so many indubitable proofs of its importance and utility to mankind; an ambition, not quite extinguished by advancing years, domestic cares, and a declining state of health, to get the better of the keenest, and most universal, persecution, that ever was raised against an useful and extensive discovery; the necessity for a translation in the present decaying state of the knowledge of the Latin language; the danger of the doctrine coming before the public from ad-

venturers unequal to the task ; and some other circumstances, partly of a private, partly of a domestic, nature, with which it would be impertinent to trouble the reader ; all these, at last prevailed with the author to submit, for once, to a task, otherwise not desirable, that of translating his own work. Such a task seemed more naturally calculated to lay the foundation of the commencing fame of an ingenious pupil. But, as no one of many, whose literature and knowledge of the subject completely qualified them for the undertaking, wished to supersede the occasion for his engaging in it himself ; and as the courage of several persons of a different description kepted not pace with their affection or interestedness ; it is to be hoped the public will not be displeased to receive the work from the author himself. This performance is intended for the use of three sets of readers ; those who do not readily enter into a thought conveyed in pure Latin, and who, therefore, might wish to be possessed of a translation for the sake of comparing it with the original, and, thereby, of acquiring, renewing, or improving their knowledge of the latter ; those, who are only acquainted

quainted with such Latin, as has prevailed in modern times; and, lastly, those, who either cannot, or will not be subjected to the trouble of reading Latin at all, and who, surely, may often be better employed.

Both this, and the original work, are intended not for the exclusive use of medical readers, but also for that of the public at large, it being evident, that, without even the exception of the professional knowledge of each individual, that of his own health is preferable to all others. And such an acquisition becomes valuable in proportion to its justness and solidity. The public are presented with a work, that claims the merit of having reduced the doctrine and practice of medicine to scientific certainty and exactness. With respect to the form, in which it is delivered, it is stripped of that jargon of numerous, unmeaning or misleading terms, and all that mystery either in style or matter, that has hitherto rendered the pretended healing art impenetrable to the most intelligent and discerning, and locked it fast up in the schools. No terms are admitted but the few that necessity imposed, and these are every where defined. The style is simple, and suited

suited to the simplicity of the subject. In the language and composition, as far as the thoughts, which are new throughout, and that restraint, which is inseparable from exactness of translation, permit, clearness is every where preferred to elegance, and diffusion to brevity.

The author, in prefixing his name to both forms of his work, has thrown the gauntlet to its numerous, but anonymous, opposers. They are, therefore, called upon, now or never, to disprove it, and the judicious and candid part of mankind to judge between the parties.

THE
ELEMENTS
OF

MEDICINE.

THE FIRST AND REASONING PART

CHAP. I.

I. MEDICINE is the science of preserving the good, and of preventing and curing the bad, health of animals.

II. The application of the same profession to vegetables, should be named Agriculture.

III. Good health consists in a pleasant, easy, and exact use of all the functions.

IV. Bad health consists in an uneasy, difficult, or disturbed exercise of all or any of the functions. The latter respects diseases.

V. Diseases are either extended over the whole system, or confined to a part; the former merit the appellation of Universal, the latter that of Local.



VI. The former are always universal from their first commencement, the latter in their course, and that but seldom. The former are always, the latter never, preceded by predisposition. The originality of the former proceeds from an affection of the principle of life, of the latter from local injury. The cure of those is applied to the whole body, of these to the injured part.

VII. To the province of the Physician belong all the universal, and as many of the local, as first affect a part, and, in consequence of that, at last injure the rest of the body with some resemblance to the universal ones.

VIII. Predisposition to disease is that state of the body, that recedes from health, and approaches to disease, in such a manner, as to seem still within the boundaries of the former, of which, however, it is only an insidious and deceiving resemblance.

IX. These *three* states (*a*) constitute the life (*b*) of animals; to which that of vegetables is not dissimilar, but more imperfect.

(*a*) Of health, disease, and predisposition.

(*b*) Or living state.

C H A P. II.

X. IN all the states of life, man and other animals differ from themselves in their dead state, or from any other inanimate matter in this property alone ; that they can be affected by external agents, as well as by certain functions peculiar to themselves, in such a manner, that the phænomena peculiar to their living state, that is, their own functions, can be produced. This proposition comprehends every thing that is vital in nature, and therefore, *at least*, applies to vegetables.

XI. The external agents in general, are reducible to heat, diet (*a*), other matters taken into the stomach, the blood, the fluids secreted from the blood, and air.[†] How poisons and contagions come under the same view shall afterwards be mentioned (*b*).

XII. The functions of the system itself, producing the same effect, are muscular con-

(*a*) Consisting of food, drink, and condiment.

(*b*) There is a correction of the original here, the words of which are, "Quo modo venena & contagiones
" eodem spectent, post modo dicetur."

B 2

traction,

+ to these may be added Light, and sound

traction, sense, and the energy of the brain in thinking, and in exciting passion and emotion. “ While these affect the system in the same manner as the other agents ; so, with respect to their origin, they arise both from the other and from themselves (c).”

XIII. The result of withholding either the property distinguishing living from dead matter, or the operation of either of the two sets of powers, is the non-existence of life (d). Nothing else is necessary to life (e).

XIV. The property, by which both sets of powers act, should be named Excitability ; and the powers themselves, Exciting Powers. By the word “ body” is meant both the body simply so called, and also as endued with an intellectual part, a part appropriated to passion and emotion, or to the soul ; the ap-

(c) This also is a correction on the margin of the original, the Latin words are “ Hae dum sic, ut reliquæ, “ corpus adficiunt, ita tam a cæteris, quam a se ipsis, “ exoriuntur.”

(d) Here occurs another correction of the text in MS. which is as follows, “ Earum rerum & actionum sive “ dempto opere, sive dempta proprietate, vita nulla.”

(e) “ Fere” is expelled.

pellation commonly given to it *in medical writings* is system (f).

XV. The common effect, produced by the exciting powers, is sense, motion, mental action, and the passions. Which effect being one and the same, it must, therefore, be granted, that the operation of all the powers is also one and the same (g).

XVI. The effect of the exciting powers, acting upon the excitability, is to be denominated Excitement.

XVII. Since, of the same exciting powers, some act by evident impulses, and the identity of the effect of others infers the same mode (b) of operation; and since they have

(f) No disquisition is here meant to be entered into, as religion is no where interfered with, but left to its proper guardians.

(g) That is, since sense, motion, mental functions, and the passions are the only, and a constant, effect of the exciting powers, acting upon the excitability; and since that happens, whether one, or more, or all the powers, or which soever of them, act, the irresistible conclusion, that arises in the mind, is, that, the effect of the powers being the same, the mode of operation of them all must be the same. This mode of reasoning, which is certainly as just as it is new in medicine, will often occur, and, we trust, will stand the test of the most scrupulous scrutiny.

(b) Or ratio.

all a certain activity in them, they ought to be denominated stimulant, or stimuli.

α. Stimuli are either universal or local.

β. The universal stimuli are the exciting powers, so acting upon the excitability, as always to produce some excitement over the whole system. And their appellation of universal is convenient to distinguish them from the local.

γ. The local stimuli act only on the part to which they are applied ; and do not, without previously producing an affection in it, affect the rest of the body (*i.*).

(*i.*) The three paragraphs that follow *α.* *β.* *γ.* are an addition. The words of them are “ Stimuli sunt vel “ communes, vel locales. Stimuli communes sunt po- “ testates incitantes, ita in incitabilitatem agentes, ut “ incitationis toto corpore semper aliquid efficiant ; com- “ munes, quo commodius a localibus internoscantur, ad- “ pellandi. Locales stimuli in partem tantum, cui ad- “ moventur, agunt ; nec, nisi parto jam illic adfectu, “ reliquum corpus, ac saepe ne sic quidem, adficiunt.”

CHAP. III. History and skills
XVIII. WE know not what excitability

is, or in what manner it is affected by the exciting powers. But, whatever it be, either a certain quantity, or a certain energy of it, is assigned to every being upon the commencement of its living state. The quantity, or energy, is different in different animals, and in the same animal at different times. It is partly owing to the uncertain nature of the subject, partly to the poverty of common language, and likewise to the novelty of this doctrine, that the phrases of the excitability being abundant, increased, accumulated, superfluous; or weak, not well enough sustained, not well enough exercised, or deficient in energy, when enough of stimulus has not been applied; sometimes tired, fatigued, worn out, languid, exhausted or consumed, when the stimulus has operated in a violent degree; or being at other times in vigour, or reduced to one half, when the stimulus has neither been applied in excess nor defect, will be employed in dif-

ferent parts of this ensuing work (*a*). Both upon this, and every other subject, we must abide by facts; and carefully avoid the slippery question about causes, as being in general incomprehensible, and as having ever proved a venomous snake to philosophy.

XIX. As there is always some excitability, however small, while life remains, and the action of the exciting powers in one degree or another is never wanting; the conclusion from that *fact* is, that they are all endowed with more or less of stimulant power, and that this must be either excessive, in due proportion, or deficient. A great quantity of blood stimulates in excess, and, therefore, produces the diseases that depend upon too much stimulus; but an under proportion of blood, though debilitating *in its effect*, and inducing the diseases that depend upon de-

(a) In this paragraph, line 6, in place of "tributi five vis five copia," read, tributi five copia five vis. In line 10, after "incitabilitas modo," read, abundare, augeri, cumulari, supereffe, vel imbecilla esse, parum sustentari, exerceri parum, vi deficere. And in the line 12, after "modo," read, lassari, fatigari, defatigari, languere vel, In line 13, after "incubuit," read, modo vigere, vel ad dimidium redigi, cum neque abundavit, neque defecit, stimulus;

bility as their cause, must still be understood to be stimulant; but only so much more weakly stimulant, as the penury is more considerable: The same conclusion applies to all the other exciting powers, unless that poisons, contagions, and some few other powers, might to some seem exceptions. But

XX. Poisons either do not produce the universal diseases, which make our present subject; or, if they do, by operating the same effect as the ordinary exciting powers, their mode of operation must also be allowed to be the same (*b*).

XXI. Some contagions accompany diseases depending on too much stimulus (*c*); others those that consist in debility (*d*). If both these are the product, not of contagion alone, but, by a conjoint operation, also of the hurtful powers that usually depend upon stimulus, which is a fact ascertained; the

(*b*) This proposition of frequent occurrence in this work, that identity of known effect, always produces identity of cause though unknown, will be found to be a mode of reasoning of equal service in guarding our reader from the deceitfulness of abstract reasoning, and in leading him into a proper mode of investigating solid and useful truth.

(*c*) As the small pox and measles.

(*d*) As the petechial typhus fever, the plague.

effect,

effect, therefore, in this case being the same, the conclusion is unavoidable, that their cause is also the same, and the mode of operation of both the same. It must, therefore, be admitted that the operation of contagions is stimulant (*e*). It makes for the same conclusion, that no remedies, but those that cure diseases, depending upon the operation of the usual hurtful powers, remove those that have been supposed to be induced by contagions. Finally, the great debilitating energy, *observable* in certain contagions, does not more prove a diversity of action *in them*, than *it does in the case of* an equal or greater degree of debility, arising from cold (*f*).

d. It might appear to some, that a certain matter of food, not sufficiently nourishing, and, therefore, of hurtful *tendency*; as also that emetics, and purgatives, and sedative passions, as they are called, might be thought to belong to the number of *powers*, the opera-

(*e*) This is all that is contended for at present; the degree of their stimulus will be afterwards considered.

(*f*) At the freezing point, or below it, man, and similar animals of warm blood, could not live a second in a dense medium, such as that of water; but the animals of cold blood can.

A (")tion

tion of which might seem so many exceptions from the ordinary stimulant operation.

ε. In general all vegetable matter, when depended upon alone for nourishment, is hurtful, at least, to those who have been accustomed to better, and that by a debilitating operation; and yet even it, since it supports life, however incommodiously, longer than *a total* want of food, must, of course, be stimulant. But, if asthenic diseases arise from vegetable food, and not, to a certain degree, from want; that circumstance must be owing to a certain change produced in the system, by which the sum total of stimuli is rendered less fit to act upon the excitability. That such is the case, is proved by the most stimulant matter of food losing part of its stimulus by continued use, and requiring the substitution of another in its place.

ζ In the same manner is the operation of emetics and purgatives to be explained, as diminishing the sum total of excitement; which depends partly on an agreeable relation *that the exciting power bears* to the excitability, or on an agreeable sensation. That it is sometimes the relation, sometimes the sensation,

sensation, that acts *in this case*, is evident from the hurtful effect of things most grateful to the sense, as in the examples of the legumina, and other articles of vegetable food; and by the salutary effect of disagreeable things, as the several forms and preparations of opium: Both which produce their effect, the former by a debilitating, that is, an insufficiently stimulant, the latter by a considerably stimulant, operation (g).

(g) Suppose a certain power, as 40, to mark the degree, in which the sum total of proper stimulant operation consists, and the excitement, produced to that degree, to arise from different exciting powers, all of them

conducting to the same effect, by the operation of each bearing an agreeable relation to the excitability, or producing an agreeable sensation on it; the inference to be drawn from that fact is, that a certain suitableness in the mixture of the whole to the excitability, as well as the degree of stimulus, produces the effect. Again, suppose certain ingredients, which cannot be denied to be stimulant, added to this given mixture, the effect of the added article will be one of two: it will either increase the excitement first produced, without altering the agreeable state which that had induced; or it will, still without any reason for supposing it not stimulant, diminish the excitement that had arisen from the combination of the agreeable articles. And this will happen merely from the effect of a discordant combination of exciting powers, while

7. The sedative affections, as they are called, are only a lesser degree of the exciting ones. Thus fear and grief are only diminutions (*b*), or lower degrees, of confidence and joy. The news of money gained produces joy, and grief *arises from* the loss of it. Here then no operation of a nature contrary to stimulant takes place; it is nothing but a diminution, or inferior degree, of stimulant

while that, which diminishes the exciting effect of the others, as well as these others, that constituted its given sum, are both stimulant; but the former in a higher, the latter in a lower degree, and therefore acting over all as debilitating powers. Mustard taken with meat, or onions with beef-steaks, are agreeable to most tastes; but they are, though still stimulant, disagreeable to others, and debilitating. Peas-soup and peas-pudding, though, independent of the animal juice infused into them, they are far from being salutary, will be well borne by many; while in others, especially those who have been accustomed to more stimulant meals, and in persons who are gouty, and liable to complaints of the first passages, they will produce morbid affection. The same thing is to be said of beef-steaks with onions, which agree with the sound state, and disagree with that of the first passages just now mentioned. With regard to all these enfeebling matters, there is no question about their being stimulant; the whole effect is to be referred to their rendering a mixture, stimulant in a certain degree, less so.

(*b*) Not passions different in kind.

operation.

operation. The subject of the passions admits of the same reasoning in every respect as that of heat (*i*) ; and in the same manner all the bodies *in nature*, that seem to be sedative, are debilitating, that is, weakly stimulant ; owing their debility to a degree of stimulus greatly inferior to the proper one.

XXII. Since the general powers produce all the phænomena of life, and the only operation, by which they do so, is stimulant ; it, therefore, follows, that the whole phænomena of life, every state and degree of health and disease, also consist in stimulus, and are owing to no other cause.

XXIII. Excitement, the effect of the exciting powers, the true cause of life, is, within certain boundaries (*k*), produced in a degree proportioned to the degree of stimulus. The degree of stimulus, when moderate (*l*), produces health ; in a higher degree it gives occasion to diseases of excessive stimulus ; in

(*i*) The doctrine of cold as an active power, and, opposite to heat, is now universally rejected, and considered as only a diminution of heat.

(*k*) "Quibus mox peire dicetur," is erased in the original.

(*l*) Of a middle kind.

a lower degree, or ultimately low (*m*), it induces those that depend upon a deficiency of stimulus, or debility. And, as what has been mentioned, is the cause both of diseases and perfect health; so that which restores the morbid to the healthy state, is a diminution of excitement in *the case of* diseases of excessive stimulus, and an encrease of *the same excitement* for the removal of diseases of debility. Both which *intentions* are called Indications of Cure (*n*).

XXIV. This mutual relation obtains betwixt excitability and excitement, that the more

(m) Aut ad extremum magnus, in MS.

(n) Betwixt the XXIst. and XXIIId. paragraph comes the following addition in the MS. of the El. Med. &c. " Ad excipiendorum numerum, quædam cibi materia, parum alens nocensque, item supra & infra purgatrix, ad fectusque sedantes qui dicuntur, pertinere credi possunt. " . Sed omnis fere e plantarum genere cibi materia, si quis foli ei pro alimento fudit, saltem meliore ali solitis materia, nocet, idque debilitando. Quæ tamen, quoniam diutius quam nulla, vitam, utut incommode sustentat, stimulet quoque necesse est. Quod si inde morbi asthenici, & non quodam tenus ab inedia, nascuntur ; id eo fit, quod aliqua intus mutatio, qua minus adverfus incitabilitatem efficax stimulorum summa redditur, usum venit. Quod ita esse, vel valedissima cibi materia, stimuli aliquantum, morando, disperdens. & ut alia ei

more weakly the powers have acted, or the less the stimulus has been, ~~the more abundant the excitability becomes;~~ the more powerful the stimulus of the agents has been, the excitability becomes the more exhausted (o).

“ forma sufficiatur, exigens, ostendit. ζ. Simili modo
 “ supra & infra purgantium opus, ut incitationis, quæ
 “ partim, in grata incitabilitati adfinitate, gratoe sensu,
 “ consistit, summam sic imminuens, explicabile est. Inter-
 “ dum adfinitatem, interdum sensum, agere, hoc patet;
 “ quod vel gratissima sensui, ut legumina & alia e plantis
 “ petita, nocent; ingrata, sicuti opū formæ, juvant,
 “ idque utrumque, illa debilitando, id est, non satis
 “ stimulando; hae valide stimulando, faciunt.

„ “ Adfectus sedantes, qui vulgo dicuntur, excitantium
 “ tantummodo vis minor sunt. Sic metus & animi dolor
 “ tantummodo fiduciae & gaudii sunt detractiones. Lu-
 “ crifactæ pecuniae nuncius gaudio, perditæ dolori, est,
 “ pro magnitudine uterque summæ crescens. Utque in
 “ pecuniae accessione stimulus accedit, sic in illius dece-
 “ sione hic decedit. Nullum igitur stimulanti contrarium
 “ opus hic suboritur, tantumque stimulantis operis im-
 “ minatio. Idemque hic ubique, quod de calore dicen-
 “ dum. Eodemque modo quæcunque fedare videri po-
 “ terant, ea omnia ita debilitant quidem, id est imbecil-
 “ liter stimulant, ut e minore justo stimulo ea debilitas
 “ oriatur.”

(o) All that follows in the original to the words “ ratio
 “ reperitur,” is erased.

XXV. A mean stimulus, affecting also a mean or half-consumed excitability, produces the highest excitement. And the excitement becomes less and less, in proportion as either the stimulus is applied in a higher degree, or the excitability more accumulated. Hence the vigour of youth, and the weakness of childhood and old age. Hence, within a more moderate space of time, a middle diet *gives* vigour, and debility is the effect of its being either too full or too sparing.

XXVI. While that is the case, every age, every habit, if the excitement be properly directed, has its *due degree* of vigour *accommodated to it*. Childhood, and that weakness, which an abundant excitability produces, admits of little stimulus, *but*, upon less than the middle proportion becomes languid, upon more is oppressed. Old age, and that frailty, which is occasioned by a deficiency of excitability, requires a great deal of stimulus, becomes enfeebled by less, and overthrown by more (*p*). The reason for the latter is, that the excitability, without which no vital action is produced, does not exist in

(*p*) What follows to the end of this No. is an addition in MS. to the original.

that degree, by which vigour of the functions is produced; while the former is to be explained from the exciting or stimulant power, without which the excitability is of no effect, not being applied in that degree, which is requisite to the vigour that it should give. The impotency of stimulus may rise to such a degree, as to produce death from its extreme under proportion. On the contrary, the exhaustion of excitability may go so far, as to extinguish life by the extreme excess of stimulus.

XXVII. The circumstances, under which excitement is produced, have two confining boundaries (*q*).

XXVIII. The one (*r*) of these circumstances is, exhaustion of the excitability from violence of stimulus. For all the stimulant powers may carry (*s*) their stimulant energy to that degree, under which no excitement will arise. The reason for which is, that the

(*q*) The Latin text is altered in MS. thus, “*Conditiones, quibus incitatio nascitur, intra duo fines continentur.*”

(*r*) “*Quarum*” is erased in this paragraph.

(*s*) *Hic* in the Latin text is erased, and after “*esse*” *poteſt* is inserted.

body becomes no longer fit to receive the operation of stimulus; another expression for which is, that the excitability is consumed.

XXIX. The termination (*t*) of excitement, from the exhaustion of the excitability by stimulus, may be either temporary or irreparable, and may arise either from a short continuance of a high degree of stimulus, or a long application of one the excess of which is more moderate. Both circumstances come to the same thing; the high degree of stimulus compensating for the shortness of its application, and the shortness of its application for its greater moderation in degree (*u*). The effect of the former is sudden death; of the latter a more gradual death preceded by diseases. And though a most exact measure of excitement were kept up, yet death at last, however late, supervenes.

XXX. Ebriety, debauch in eating and drinking, sweat, languor, heat, either *operating* alone, or overcoming the effect of cold,

(*t*) Or cessation, or extinction.

(*u*) A force of stimulus as six, operating for a space of time as one; and a force of stimulus as one, operating for a space of time as six, will produce the same effect in wearing out the excitability.

dulness in mental exertion from excessive thinking, or sinking of the spirits in consequence of violence of passion, finally, sleep ; all these are the consequences of a short application of a high degree of stimulus, operating an exhaustion of excitability. The long continuance of a more moderate excess in the force of stimulus, is followed by the frailty of old age, predisposition to diseases of debility, as well as those diseases themselves. The ultimate termination of both is death.

XXXI. When the excitability is wasted by any one stimulus, there is still a reserve of it, capable of being *acted upon* by any other. Thus a person, who has dined fully, or is either fatigued in body, or tired with intellectual exertion, and therefore under a great disposition to sleep, will be recruited by strong drink ; and, when the last has produced the same sleepiness, the more diffusible stimulus of opium *will arouse him* (w). Even after

(w) A gentleman, engaged in a literary composition, which required an uninterrupted exertion of his mental faculties for more than forty hours, was enabled to go through it with alacrity, by supporting himself in this

man-

after opium fails, and leaves him heavy and oppressed by the same propensity, a stimulus still higher and more diffusible, if there be any such, will have the same effect. A person fatigued with a journey will be roused by music to dance and skip ; and he will be enabled to run after a flying beauty if her flight encourages him with the hope of overtaking her.

XXXII. The waste of excitability, first exhausted by stimuli, and then recruited by new ones, is most difficultly repaired ; because the more a stimulant operation has been

manner. After dining well and setting to business, he took a glass of wine every hour. Ten hours after he ate something nourishing, but sparing in quantity, and for some hours kept himself up with punch not too strong. And, when he found himself at last like to be overcome by an inclination to sleep, he changed all his stimuli for an opiate ; and finished his business in forty hours. What he had wrote was now to be put to the press. He had next to watch and correct the proofs, which cost him between four or five hours further continuance of vigilance and activity. To effect this he took a glass with the Master Printer, while his men were going on with their part of the work. The succession of stimuli in this case was first food, next the stimulus of the intellectual function, then wine, then the food varied, then punch, then opium, then punch and conversation.

employed, that is, the more the stimuli have been applied; there remains the less access to fresh stimuli, by the operation of which the failure of excitement may be removed (x).

XXXIII. The reason of the difficulty is, that no means of reproducing the healthy state, that is, the proper *degree* of excitement, is left; but the very circumstance that occasioned the waste, that is, already an excess of stimulant operation, not admitting of more stimulus (y).

XXXIV. Such, in fine, is the nature of the same loss of excitement, that it rushes to instant death, unless proper measures be taken to preserve life by a great stimulus, but less than that which occasioned it, and then by a still less, till by means of the moderate stimulus, that is suitable to nature, or a somewhat greater, life may at last be preserved (z). The difficult cure of drunkards and gluttons, already affected with diseases, sufficiently evinces, that the same considera-

(x) What follows in the El. is erased, and all of the next number to "evadit, cum."

(y) What follows in this par. is also left out.

(z) In the El. for "succuri vitæ," read servari vita.

tion applies to all the exciting powers that stimulate in excess (*a*).

XXXV. The excitability thus exhausted by stimulus is debility, which should be denominated indirect, because it does not arise from defect, but excess of stimulus (*b*).

XXXVI. Through the whole progress to indirect debility, the second impression of every stimulus has less effect than the first, the third less than the second, and so forth to the last, which gives no more excitement; and the effect takes place in proportion to the degree or duration of *the several impressions*, though every one always adds some excitement. The inference from this proposition is, that, before the establishment of indirect debility, and, when it is now upon the eve of being established, the stimulus which produces it, should be withdrawn; a debilitating power should be applied, as in giving over drinking wine at the end of an entertainment, and substituting water in its

(*a*) This proposition applies to the most difficult part of the practice for the cure of diseases, that is, those that depend upon a certain species of debility, which in the very next paragraph will be denominated *indirect*.

(*b*) Like another debility, by and by to be spoken of.

place, and applying refrigeration to a person who has been exposed to an excessive degree of heat (c).

XXXVII. The same progress to indirect debility is retarded by diminishing the excitement from time to time, and proportionally increasing the excitability, and thereby giving more force to the action of the stimuli. Take for example, cold bathing from time to time, lowering the diet from time to time, and a similar abatement of all the *other* stimulant powers.

(b) If cold sometimes seems to stimulate, it produces that effect, not as actual cold, but either by diminishing excessive heat, and reducing it to its proper stimulant temperature (d), or by rendering the body accessible to

(c) A convalescent, from a disease of debility, was prescribed wine, but not to carry it to excess. A hiccup was the signal, by which he was to understand, that he had carried that stimulus too far. He desisted, and ended his jollity with two or three tumbler glasses of water; which prevented the establishment of the indirect debility into which he was about to fall.

(d) The principle upon which the operation of the cold bath depends has never been understood, and therefore all reasoning, as well as practice, with respect to it, has been conducted in quite a vague and random manner, Sup-

to air, or by accumulating the excitability diminished by excessive stimulus, and communicating energy to the stimulus of the exciting powers, now acting too languidly. An instance of this operation of cold occurs in the Torrid Zone, where actual cold is scarcely to be procured, in the use of refrigerants, as they are called, in fevers, and in the contraction, by means of cold, of a scrotum previously relaxed by heat. Nay, the effect goes so far, that sthenic diseases may arise more certainly from cold, alternating with heat, and

pose a range of excitement, the middle and healthy point of which is 40 degrees of excitement, the ultimate degree of its excess 70. It is, therefore, the intermediate degrees between these extremes, to which the practice of cold bathing is applicable. From 80 to 70, the former of which is the head of the scale, and constitutes the range of indirect debility; and likewise through all the intermediate degrees from 40 down to 0, the cold bath, which is a weakening power, as well as every other, is improper. It is a mistake prevalent among systematic writers and lecturers, that cold is of service in the fevers and other diseases of the Torrid Zone. The truth is, that, in that country, there is no access to the use of actual cold. All, that can be done there, is, by various means, to diminish the excess of heat, which is constantly rushing from those degrees of it which stimulate and excite, to those, in which its ultimate stimulant power destroys excitement, and leaves nothing but indirect debility.

either

either preceding or following it, than from pure heat.

XXXVIII. The other condition *or circumstance*, limiting excitement, is, an energy of the exciting powers too small, and therefore insufficient to produce excitement. As this case arises from a deficiency of stimulus, ~~and an abundant excitability~~, it ought to be distinguished from the other, which supposes ~~an abundance of the former, and deficiency of the latter~~. The same distinction is required also for the purpose of practice. All the exciting powers may fall so short of stimulant force, as to produce that effect. They all, therefore, equally serve to illustrate and confirm this *proposition*.

XXXIX. In this case, the excitability is ~~sharpened~~ ~~abundant~~, because, in consequence of the stimuli being withheld, it is not ~~exhausted~~. *Rephrased*. Thus, in the cold bath, the excitement is diminished, because the stimulus of heat, and, therefore, the sum of all the stimuli, is deficient; and the excitability, as being less exhausted by stimulus, is encreased (e). The same

(e) This is altogether a negative circumstance. The accumulation, increase, or abundance of excitability, take any

same conclusion applies to famished persons, to water drinkers, to those who are in a state of refrigeration from other causes, to those who have suffered evacuations of any kind, to

any term you please, is not occasioned by any action or operation, but by the want of action, the want of operation. To form an adequate idea of it, suppose a scale of excitability of 80 degrees, as in the line here drawn.

EXCITING POWER.

0 10 20 30 40 50 60 70 80

EXCITABILITY.

80 70 60 50 40 30 20 10 0

At the commencement of life, the sum total assigned is understood to be 80, because no part, as yet, is wasted by the action of stimuli. Next it is wasted in proportion as these are applied from the beginning to the end of the scale. Its wasting is, therefore, owing to action and operation, but its accumulation to the reverse, the want of the action or operation of the exciting powers, as is expressed by the numbers placed above those first mentioned. Thus one degree of exciting power applied takes off one degree of excitability, and every subsequent degree impairs the excitability in a proportion exactly equal to its degree of force. Thus a degree of stimulant or exciting power equal to 10, reduces the excitability to 70; 20 to 60; 30 to 50; 40 to 40; 50 to 30; 60 to 20; 70 to 10; 80 to 0. And, on the contrary, the subtraction of stimulant power allows the excitability to accumulate. Thus, when the excitement is at 79, constituting only one degree of life, take off one degree of exciting power, and 2 degrees of excitability will arise. As 80 degrees

to those who have neglected the *stimulus* of exercise, and given themselves up to indolence; to those who have neglected the use of that *stimulus*, which exercise of the mind affords, and to persons in low spirits. The effect of withdrawing any *stimulus* is the more liable to produce ~~direct~~ debility, the more any person has been accustomed to a higher operation of it (f). Take, for an example, the gout, and many other diseases, under the same circumstances, affecting some, and sparing others (g).

XL. As,

of exciting power leave no excitability, so 70 degrees of exciting power leave 10; 60 20; 50 30; 40 40; 30 50; 20 60; 10 70; 0 80. Hence death takes place from nothing positive, but from the negation of the only means by which life is supported; which are the several exciting or stimulant powers, now fully explained.

(f) For instance, persons accustomed to drink wine, and eat well-seasoned nourishing animal food, will be more hurt by a water and vegetable regimen, than those who have not lived so high in that respect. The inhabitants of Britain could not live long upon the diet of the Gentoos. Persons in genteel life could never undergo the work of day labourers upon their fare.

(g) Vegetable aliment, and fruits and cold roots, as cucumbers, melons, acid drinks, and many other things not sufficiently stimulant, will bring on a fit of the gout, all or any one of them, at any time; while there

+ The use of this appellation is here premature, as the meaning of direct debility has not been at all explained. It is given in pag 34

XL. As, during the ~~de~~crease of excitability, the excitement decreases, and in proportion to the ~~in~~crease of the former; so that that process may go all the way to death, is a fact from which nature exhibits no exception. It is confirmed by the effect of all the debilitating powers, mentioned above; every individual of which, as often as it proves urgent, has a rapid tendency to death (b).

XLI. The defect of any one stimulus, and the proportional abundance of excitability, is, for the time, compensated by any other, and often with great advantage to the system. So a person, who has dined insufficiently, *and therefore not well enough stimulated*, is recruited by a piece of good news. Or, if during the course of the day, he has not been sufficiently invigorated by the stimulant operation of corporeal or mental exercise, and consequently likely to pass a sleepless

are other persons free from the taint which distinguishes that disease, who can use them with impunity, or, at least, with much more freedom and less harm. Something similar to this observation applies to most diseases. All from dicendum in the Latin text to the end of this paragraph, is an addition.

(b) All that follows of this paragraph was brought in XXXVII. 9, as more properly belonging to that place.

night,

night, he will be laid asleep by a dose of strong liquor. When the latter is not at hand, opium will supply its place. The want of the venereal gratification is relieved by wine, and the want of the latter is made amends for by *the use of* the former, each banishing the languor occasioned by the want of the other. The same conclusion applies to the use of stimuli, for which we have an artificial, rather than a natural, craving. The longing for snuff, when it cannot be got, is gratified by the practice of chewing tobacco; and, when any one is languid for want of tobacco, smoaking supplies the place of it. Nay, when the functions, as they often are, have undergone a temporary lesion, and on account of that, there is no access to the use of certain accustomed and natural stimuli; the substitution of others, less accustomed, and less natural, supports life, till the desire for the natural stimuli is restored, and these are now in a condition to support the natural vigour as usual, and the health *finally* established (i).

XLII. As,

(i) This proposition is of the utmost importance, as holding out the true principle, upon which so many actions and

XLII. As, in this manner, the superabundance of excitability, proportioned to the deficiency of stimulus, may, through all the degrees from its smallest to its greatest quantity, be worn out to a certain extent, by one stimulus, and then another, and the danger of its *morbid* accumulation awarded, till the sum of it be brought down to that, which is suitable to health; so, the more abundant the *same* excitability is, that is the more stimuli are withdrawn, or the greater the penury of the most powerful stimuli is; the less recourse can be had to that mediocrity of excitability on which the vigour of life depends; and the weakness may go to that pitch, the excitability arrive at that degree of abundance, that the *loss* of excitement may at last become irreparable. This proposition is both illustrated and confirmed by the use of every debilitating power; as is exemplified by cold, famine, thirst, and the progress of fevers.

and feelings of human life, both in health and disease, are to be explained, and particularly as laying down an indication, which applies to $\frac{1}{2}$ ths of all febrile diseases, and include our artificial as well as our natural desires and appetites.

XLIII.

Bo. 1. 100. 1.

The whole of this paragraph is erroneous.

XLIII. This superabundant excitability proceeds with such rapidity to death, that the only means of restoring health, is first to encounter it with a very small *dose of* diffusible stimulus, *a dose* scarcely exceeding the scanty (*k*) portion of stimulus, that occasioned it; then, after wasting a part of the superabundance, to proceed to somewhat a stronger dose of *the stimulus*; and in that manner to be constantly taking off whatever superfluity still remains, till at last the salutary mediocrity is regained. This state is the converse of that debility, which arises from a worn-out excitability (*l*), and the danger of death occasioned by it. *To give examples*, a famished person is not immediately to be gratified with a full meal; a person afflicted with a long duration or high degree of thirst, is not immediately to be indulged with a large draught; but the former should be given bit by bit, the latter drop by drop, then

(*k*) Or under-proportioned.

(*l*) An instance of a worn-out excitability is that debility which arises from intoxication; one of an accumulated excitability is that which dram-drinkers experience the day after a debauch, in consequence of which their hands shake till they are re-excited by their favorite cordial.

both

both of them gradually more plentifully. A person benumbed with cold should gradually receive the cherishment of heat. Every person, thoroughly penetrated with grief, sorrow, or any high dejection of mind, should have good news gradually communicated to him. The news of the safety of the Roman soldier, who survived the disaster of his countrymen at Cannæ, should have been communicated to the mother in a round-about way, at first as having no better foundation than doubtful report, then as being somewhat more to be depended on, afterwards as having still a greater appearance of certainty, finally, as not admitting a shadow of doubt: and last of all, before her son was introduced to her, the woman should have been at the same time fortified (*m*) both by other stimuli, and a glass of Falernian wine (*n*).

XLIV. Since all life consists in stimulus, and both the over-abundance and deficiency of it is productive of diseases, and in *exact* proportion to the over-abundance or deficiency; it follows, that the remedies of

(*m*) Had a part of her very abundant excitability taken off.

(*n*) The remainder of this paragraph in the original is struck off as being nonsensical.

both these deviations from the *proper* standard should be accommodated to their degree; and that a high sum total of stimulus, through the course of the disease, should be applied to a high degree of debility, ~~or, what comes to the same thing, to a very abundant excitability;~~ but, that the quantity to be applied at any *particular* time should be in the same proportion small, ~~that the excitability is abundant.~~

XLV. The debility arising from defect of stimulus, merits the appellation of DIRECT; because it happens in consequence of no positive hurtful power, but from a subduction of the necessary supports of life.

XLVI. Through the whole course of direct debility, every deficiency of stimulus is encreased by a second, the second by a third, the third by a fourth, till the effect at last comes to be a cessation of any further excitement. This last, therefore, is never to be lessened, and the debility encreased, with the view, forsooth, that, in consequence of encreasing the excitability, the addition of a new stimulus may act more strongly. For, as often as that is put in practice, the morbid state is encreased; and, if the debility should

happen to be great, any *further* encrease of it may induce death, but *never* encrease the strength. For, while great debility, and, indeed, at pleasure, may, *in that way*, be produced; *any* excitement to be obtained from a stimulus to come after, is confined within narrow boundaries (o). Take for an example, cold bathing in dropsy, in the gout, in fevers (p), in persons who, previous to

(o) Suppose, that in place of an excitement of 40 degrees, the excitement is gone down to XXX, and the excitability mounted up to L, and a debilitating power, such as the cold bath, or any of those that are just now to be mentioned in the text, has been superadded, reducing the excitement to XXV, and accumulating the excitability to LV. Suppose also, that any stimulus is next employed, with a view to raise the excitement, and sink or reduce the excitability; what will be the result? As an accumulated excitability admits of a very small degree of stimulus at any given time, while the accumulation of excitability, and sinking of excitement, even to death itself, can be effected in the shortest space of time, and by any one of the debilitating powers; consequently, the loss of vigour by the first practice, and the reparation of it by the last, will bear no proportion to one another; there will be no possibility of regaining the vigour thrown away, much less any hope of procuring more than existed before it was lowered.

(p) By fevers here are meant those diseases, so named, which depend on evident debility, and not any of those,

to this, have undergone refrigeration, and in every sort of debility. And who would treat *the cases of famine, of deep sorrow, of weakness of the mental function, of languor from inactivity, of penury of blood, which are all cases of direct debility*; who would treat them by superinducing *more direct debility*, with a view to his gaining some advantage from the very scanty stimulus, *that can be admitted?* The accumulation of excitability, applies only to the predisposition to *indirect debility, or sthenic diathesis.*

XLVII. With respect to every sort of debility, *it is to be observed, from all that has been said upon both forms of debility*, that, as *indirect debility is never to be cured by direct, so neither is the latter by the former, nor either by the other, in the vain hope of*

which, though most injudiciously so named, depend upon an opposite cause. Instances of the former we have in all the fevers of the intermittent or remittent kind, in *synochus, typhus, and the plague itself, with others that have never been considered as fevers.* Examples of the latter occur in *synocha, or the common inflammatory fever, in the several diseases of the same stamp accompanied with inflammation in a part, as in the throat, lungs, and various parts of the external surface.*

obtaining

obtaining benefit from the after employment of any stimulus (*q*).

(*q*) Indirect debility appears in the range of scale from 70 up to 80; the direct, in all the degrees below 40 to 0. The only cases, that admit of debilitating operation, are those of excessive excitement from 40 up to 70. For the cure of diseases within this latter range, all the directly debilitating powers are proper, and, for the most part, they only; because there is no access to the use of the indirectly debilitating powers, till they have run their full course of stimulant operation from 40 to 70, at which last only they become debilitating; and, though sometimes, and under certain circumstances, they may be employed, the safest general rule is to avoid them.

C H A P. IV.

Of the Seat and Effects of Excitability.

XLVIII. THE seat of excitability in the living body (*a*), is medullary nervous matter, and muscular solid ; to which the appellation of nervous system may be given. The excitability *is* inherent in it, *but* not different in different parts of its seat. This fact is proved by the production of sense, motion, the mental function, and passion (*b*), immediately, instantaneously, and not in a series of successive operation (*c*).

t. Dif-

(*a*) Called system by medical writers.

(*b*) That is, all the functions which distinguish living animal systems.

(*c*) If a small quantity of an opiate, a large one of any strong spirit, taken into the stomach, can instantly alleviate an excruciating pain in a part the most distant from that to which the remedy is applied, and, in a short time after, remove it altogether, as is now well known, how is that to be explained but by the above proposition ; it being impossible to pretend that it is carried in the vessels ? Nor is any other of the many hypotheses, that have been thought of for the solution of this fact, more admissible. Should it be imagined, that it moves along the nerves according

11. Different exciting powers are applied to different parts of the nervous system, none at once to them all ; but *the mode* of their application is such, that, wherever they are applied, every one immediately affects the whole excitability (d).

XLIX. Every one of the same powers always affects some part more than any other, *in which respect* one power *affects* one part *more than any other*, another another, *with the same* inequality. The affected part is generally that to which any of the powers is directly applied.

12. And besides that, the more excitability has been assigned to any part from the beginning of *the living state*, that is, the more vivid and sensible it is, the operation upon it according to the last opinion, we demand proof of that assertion ; which has not yet, and will not easily be produced ; while the fact just now assigned carries its own demonstration in its bosom. The question resolves itself wholly into the following solution : Why does opium at once relieve the gout in the stomach, on the external surface, and in the remotest extremity of that surface ? Because the property in the living system, upon which and by which it acts, is one and the same over all,

(d) A * here is inserted to correct an error in the numbers of the original, the N° XLVII. being twice repeated,

of each exciting power, whether acting with due force, or in excess, or in defect, and through all the intermediate degrees of its action, becomes more powerful (e). Thus the brain and alimentary canal possesses more vivid excitability, that is, more propensity to life, than other internal parts; and the parts below the nails, than other external parts (f). Again, while the fact just now related is such, as it has been stated, the affection of the part bears no proportion to that diffused over the whole body.

L. An estimate may be formed of the degree of affection in the part more affected than any other, and of that which is diffused over the whole body, by comparing the affection of the former with as many lesser affections, taken together, as equal the number of parts in all the rest of the body. Suppose the greater affection of a part (g)

(e) That is to say, if the exciting power acts with that force which produces health, the degree of its action is greater upon the given than any other part; as also when its action is either greater or less than that of the middle salutary degree.

(f) This paragraph is an addition.

(g) As the inflammation of the lungs in peripneumony, the inflammation of the foot in the gout, the effusion of water into a general or particular cavity in dropsy.

to be as 6, and the lesser affection of every other part to be 3, and the number of the parts less affected to amount to a 1000 (b); then *it will follow, that the ratio of affection, confined to the part, to the affection of all the rest of the body, will be as 6 to 3000.* This estimate, or something very like to it, is proved by *the effect of the exciting hurtful powers, which always act upon the whole body (i); and by that of the remedies, which*

(b) Which is keeping greatly within the truth.

(i) The hurtful powers, which produce peripneumony, in common English, the inflammation of the lungs, are excess in eating, drinking, exposure to heat, or to the alternation of heat with cold, an over proportion of blood from inactivity, or an increased velocity of its motion from violent labour, &c. the effect of any or all which must fall as much upon every other part of the system as upon a small portion of extreme vessels in the lungs, and therefore the morbid affection produced cannot be confined to the latter, but must be extended to the former. The whole body must partake of the morbid change; it must be one common affection pervading the whole. If this is not probation, let any thing left on record by authors, or any living physician, produce a single hurtful power, that, without affecting the system over all, can penetrate into the inmost recesses of the lungs, and there produce an inflammation. I shall be content with one such hurtful power, and in exchange for it, when produced, give up my whole doctrine.

always remove the effect of the hurtful powers from the whole body (*k*), in every general disease (*l*).

LI. In this way temperature affects the surface of the body ; diet the stomach, and the rest of the same canal ; the blood and other fluids their respective vessels ; labour and rest the vessels again, and fibres of the muscles ; passion and exertion in thinking, the brain ; all these affect the parts mentioned, each that upon which its action is exerted, more than any other equal part.

LII. Instances of the greater excitement of a part than *of the rest of the body*, are

(*k*) Here too I throw the gauntlet. Find a single remedy which removes the disease by an operation confined to the lungs. There is not one.

(*l*) A wound in the lungs, among other effects of it, may produce an inflammation. But that is not a peripneumony, or a general disease at all. It is, on the contrary, a local one, arising from a local cause, and to be removed by local remedies, if access could be had to them. And though nothing has been more common than blending such cases of local and general disease, at the same time no error that has hitherto crept into the art, needs more to be corrected. Such an accident is as much a peripneumony, as an inflammation from a contusion in the foot is a gout, or the swelled legs of women heavy with child is dropsy. But of all this more hereafter.

found in sweat in a person in health, flowing first from the brow under exercise, in checked perspiration, in inflammation or an affection analogous to it in diseases, in head-ach (*m*) and delirium. Proofs of a lesser excitement in a part, are excessive perspiration and sweat not occasioned by labour or heat (*n*), especially when it is cold and clammy, profusion of the other excretions, spasm, convulsion, partial palsy, weakness or confusion of intellect, *and again* delirium.

LIII. As the operation of the general powers, whether exciting in excess, in due proportion, or in defect, is directed to some one part a little more, than to any other equal part; *it is next to be observed*, that it must be of the same kind in that part as in the rest, and, as well as the general *operation*, be either in excess, or in just proportion or deficient, but never of an opposite *nature*. For, as the exciting powers are the same, and the excitability every where the same, it is impossible that the effect should not be the same. The excitement, therefore, is never increased in a part, while it is

(*m*) Capitis dolor in the original, is an addition.

(*n*) Vel calore is another.

diminished in the general system—nor diminished, while the general excitement is increased. There is no difference here, but one of degree; nor can different effects flow from one and the same cause.

For though, on account of the great sensibility of certain parts, (for instance, the stomach (o), and the forcible energy of the exciting powers, either in stimulating or debilitating, exerted on them, these parts run sooner than most others either into direct or indirect debility, or into a great encrease of excitement; that however is only *a matter of short duration*, and it is not long before the rest of the functions are hurried into the same state. Thus, nausea, vomiting, diarrhoea, and other similar symptoms, produced by strong drink and opiates; as well as the same affections apparently, and the gout, colic, gripes, and other similar symptoms, occasioned by abstinence and water drinking; likewise good appetite, and the removal of

(o) For the same reason, i. e. the sensibility of the genital system, wine and other strong liquors, as well as opium, operate indirect debility sooner upon these parts than others.

the

the turbulent symptoms of the stomach and intestines, which we have mentioned, taking place in the convalescent state, in consequence of a proper administration of food, drink, and diffusible stimulants: *all these* are shortly followed by a similar state of the rest of the body, and the establishment of indirect debility is the consequence of the first case; that of direct debility *succeeds to* the second, and health over all is the termination of the last.

LIV. A part, therefore, is the seat of no general affection; the whole body is the seat of them all; because, with the inequality *above* related, the whole excitability is affected in them all.

LV. Neither is the affection of the more suffering part the first, and afterwards propagated over the system; for this good reason, that, as soon as the excitability is affected any where, it is also and immediately affected every where. Both facts are confirmed by the operation of every exciting power, affecting the whole body as quickly as any one part; by general morbid affections appearing equally soon over all the system

system as in any part, and for the most part sooner (*p*). Therefore

LVI. Every affection of a part, however formidable, *occurring* in general diseases, is to be considered as only a part of the affection inherent in the whole body, and the remedies are not to be directed to a part, as if the whole disease lurked there, and was thence to be taken off only, but to the whole body, to all which it belongs (*q*).

(*p*) The pain of the thorax in peripneumony, which is the sign of the inflammation within, never appears so soon as the general affection, and in more than one-half of many hundred cases, where this fact has been painfully scrutinized, it did not appear till one, two, or three days after the commencement of the general affection. Likewise the pain of the gout is not the first of the phænomena of that disease. But all these, and many more particulars, will be brought in with more advantage in their proper places afterwards.

(*q*) When the affection of a part is external, and, therefore, accessible, the application of a remedy over it, in conjunction with the use of the internal remedies, is of service, in consequence of their mutually assisting each other. A rag drenched in a liquid opiate, helps the operation of that remedy taken internally; but that is still by operating upon the excitability over all.

C H A P. V.

Of Contraction and its Effects.

LVII. THE intire and vigorous contraction with which muscular fibres are endowed, is in proportion to the degree of excitement upon which it depends (*a*). This is proved by all the phænomena of health and disease, and by the operations of all the exciting powers and of all the remedies. Force and propensity to motion are the same. We must judge from facts, not from appearances. Consequently, tremor, convulsion, and every affection comprehended under it, are to be imputed to debility as their cause. The hurtful exciting power is a stimulus uncommonly irritating to the part.

LVIII. The degree of contraction, that constitutes spasm, is not an exception from this *proposition*. It is a continued and deficient function, rather than a great and exact one;

(*a*) It has already been proved, that all the functions depend upon excitement, and therefore contraction among the rest.

and in so far as it is a great contraction, it depends upon the local stimulus of distension, or of something resembling distension, it consists in diminished excitement, is devoid of force, and removed by stimulant remedies. The appearance of symptoms, which is ever misleading, is never to be trusted in forming any judgment. Take now both the fact and the explanation of it.

LIX. As the degree of contraction, in so far as it is a sound function, is connected with force; from that we are to hold it as a certain and demonstrated fact, that the density of muscular fibres considered as simple solids, is proportioned to the degree of their contraction.

LX. It must therefore be admitted, that excitement is the cause of density. And the density is rendered greater and greater by the excitement in proportion to the degree of the latter: Which it is easy to perceive through all the intermediate degrees of *strength*, from *the highest*, or *that* which takes place in madness, and the density corresponding to it, to *the lowest*, or *that debility* which is discerned in the article of death, in death itself, and after death, with a laxity corresponding to

to it. That this is the fact, is proved by the weakness of the same fibres in their dead, and their strength in their living, state; the only cause of which difference, we know for certain, is excitement (*b*).

LXI. Hence the cavities of the vessels, through their whole tracts, over the whole body, are diminished in *a state of strength*, and increased in weakness. This is the true cause of diminished perspiration (*c*).

(*b*) Experiments have been made by Baron Haller and others, to ascertain the comparative strength of muscular fibres, and the criterion of judgment was their greater or lesser disposition to break by appended weights; but the power by which any body resists stretching, is the density of that body. Those experiments show that the fibres in the living body are prodigiously stronger than the dead.

(*c*) and not any of the hypothetical ones, as constriction from cold, or spasm, which are to be considered afterwards.

C H A P. VI.

The forms of Diseases and Predisposition.

LXII. EXCITEMENT, the effect of the exciting powers, when *of a proper degree*, constitutes health ; when *either excessive or deficient*, *it proves the occasion of disease*, and, of predisposition previous to the arrival of disease. The state both of the simple solids and fluids follows that of health as constituted by the excitement, and a given state (a).

μ. The first cause of the formation of simple solids, and the sole one of their preservation after, is the excitement. Under the direction of the excitement, the living solids produce the blood from an external matter taken into *the system*, keep it in motion, form its mixture, secrete from it various fluids, excrete them ; absorb others, and circulate and expel them from the body. It is the excitement alone, thro' its varying degrees, that produces either health, diseases, or the return of the sound state. It alone governs

(a) This proposition overturns the principal systems that have ever appeared in the profession of medicine. But more of it after.

both universal and local diseases. Neither of which ever arise from faults of the solids or fluids, but always either from increased or diminished excitement. The cure of neither is to be directed to the state of the solids or fluids, and only to the ~~diminution~~ or the increase of excitement. But

LXIII. Affections peculiar to parts, or organic maladies, being foreign from this place of the work, in which the treatment of the general state of the body is only considered, must be passed over at present.

LXIV. That the excitement governs all life is proved by the exciting powers, acting always by stimulating, and thereby producing excitement; it is proved by the greater or smaller activity of the functions being proportioned to the force of the exciting powers; it is proved by the effect of the remedies, which always oppose deficient to excessive, and excessive to deficient, excitement, in *effe*
fecting the cure of diseases.

LXV. The notion of health and disease being different states, is disproved by the operation of the powers which produce them, and of those that remove them, being one and the same.

LXVI. The general diseases, arising from excessive excitement, are called sthenic (*b*) ; those that originate from a deficient excitement, asthenic (*c*). Hence there are two forms of diseases, and both are always preceded by predisposition.

LXVII. That the origin of diseases and predispositions, *just now* mentioned (*d*), is the only one and true, is proved by the same powers which produce any disease, any predisposition; also producing the whole form of diseases to which it belongs ; and by the same remedies, which cure any disease, or predisposition, also curing all the diseases and predispositions of its respective form (*e*). Be-
twixt

(*b*) Their old name is phlogistic ; but as that word is absurdly metaphorical from an old notion of that sort of diseases depending upon fire or flame ; and because it was not a proper contrast to the term here to be opposed to it ; as also because it is still more ridiculous when applied to plants, which are comprehended in this doctrine ; for these reasons it has been thought proper to reject it, and substitute the other in its place.

(*c*) phlogistici and antiphlogistici are thrown out.

(*d*) in the last paragraph.

(*e*) The same hurtful powers produce, and the same remedies remove, both Catarrh and Peripneumony, only differing in degree. The powers producing them are excess

twixt these opposite sets of disease and predisposition, perfect health is the mean, leaning to neither extreme.

LXVIII. The exciting powers, which produce predisposition to diseases, or those diseases themselves, should be denominated sthenic, or strictly stimulant. Those that pave the way to asthenic diseases, or produce the latter, should be called asthenic, or debilitating. The state of the body, producing the former or the predisposition to them, is to be called Sthenic Diathesis ; that which occasions the latter, with the predisposition peculiar to it, receives the new term of

cess in the use of stimulants, and the remedies whatever moderates that excess. Evacuation, cold, and starving, are the means. All the difference is, that more of the means are employed for the cure of Peripneumony than for that of Catarrh. The hurtful powers producing indigestion and fevers, are also the same, to wit, debilitating ; and the remedies the same, to wit, stimulant. Only a small degree of the remedies, proportioned to the slightness of the degree of the cause, is sufficient for the cure of indigestion ; while the most diffusible stimuli are required to effect the cure of fevers. Stimulants, in one degree or other, make the cure of all asthenic diseases ; evacuants and other weakening means in different degrees, form the whole cure of the sthenic form of diseases. Might not this have been known long since ?

Asthenic Diathesis. Each of these diatheses are a state of the body, the same with predisposition and disease, varying only in degree. Distinguish the powers, that raise both the diatheses to the degree (*f*) of disease, by the term exciting hurtful powers. The asthenic diseases, in which the pulse is turbulently affected, should not be denominated fevers or febrile diseases, but, for the sake of distinguishing them from the asthenic diseases, that disturb the pulse, to which fever is a proper name, they should be called Pyrexies,

(*f*) or full measure,

C H A P. VII.

The Effect of both the Diatheses and of the most perfect Health itself.

LXIX. THE common effect of the sthenic hurtful powers upon the functions is, first to encrease the functions, then partly to impair them, but never by a debilitating operation (a). The effect, in common to the asthenic hurtful powers, upon the same *functions*, is to diminish them, in such a manner, as sometimes to exhibit an appearance, but a false one (b), of encreasing them.

LXX. If the just degree of excitement could be constantly kept up, mankind would enjoy eternal health. But two circumstances prevent that. Such is the nature of the sthenic diathesis, that it wastes the sum total

(a) The inability to perform motion in Peripneumony, arises not from debility, for two good reasons; first, no powers, but those that produce all the other symptoms, produce it; and the same remedies, that remove the other symptoms, are equally effectual for the removal of it.

(b) Spasm and convulsion, supposed to arise from increased influx of the nervous power, are both occasioned, and cured, by the same powers, as all the other symptoms.

(a). whence can inability to perform motion arise
but from debility? ^{E 4} ~~in~~ ^{of} ~~Health~~ impotency in loco
which is said ~~function~~ to take place, when the

of excitability assigned to every being upon the commencement of its living state, and, thereby shortening life, often by the interposition of diseases, sooner or later induces death. Which is one cause of mortality.

LXXI. The asthenic diathesis is hurtful by not supplying that degree of excitement, which is necessary to life, and thereby allowing the state of life to approach more nearly to that, in which death consists. Which opens another gate of death to mankind.

v. Further diseases and death are the consequences of the change of either diathesis into the other. Either diathesis, by means of the hurtful powers producing the other, when these are employed as remedies (c), may, either from accident, inadvertence, or design,

be

(c) Stimulants are the proper remedies for curing the gout; but they may be carried so far as to produce so much asthenic diathesis as to border upon indirect debility. A consequence of which is vomiting, purging, a feeling of burning in the intestines, intermission of the pulse, and strangury; which are only to be cured by substituting watery drink and low diet in place of those opposite remedies: Nay, the stimulants may be carried so far, as to effect the establishment of indirect debility. Hence will arise paralytic affection, anasarca, dropsy, &c. The eva-

cuants
- it may be prevented, but
cuants
cannot be cured by abdication of stimulants.
In fact, it is always temporary; and never
nerves Medicinal treatment. - Blood letting

be completely converted into the other ; and when that has been done, and opposite remedies *to those, that in this manner* proved hurtful, are employed ; it may, *by a contrary excess*, be turned back to the same state from which it set out (d). This observation will be found

cuants and other debilitating remedies, by which the diseases of sthenic diathesis are removed, may, by being pushed to excess, produce the last mentioned diseases, as depending on direct debility.

(d) Pushing the remedies of sthenic diseases too far, may reduce the patient to an incipient dropsy ; and the remedies of the latter may be urged to such excess, as to pass the range of sthenic diathesis, and terminate in indirect debility. A is affected with a disease of debility, where the excitement has gone down to 10, the excitability mounted up to 70, degrees in the scale. What is to be done ? By a proper use of high stimulants the 30 degrees of lost excitement may be restored, and as many of superfluous excitability discharged, and the excitement and excitability made to meet again at the middle point of 40. If the remedies are carried up to any degree betwixt 40 and 55, they have gone too far, and produced predisposition to sthenic diseases ; if still farther, but not exceeding 70, they will have produced one or other of these diseases. But carried beyond 70, the diseases, which their operation produces, are those of indirect debility. Any disease of this sort, when treated according to a rule lately delivered, will be cured. But if the stimulants adapted to this purpose be urged further ; the sthenic

found of the greatest consequence in the cure of both predispositions and diseases (e). What is wanting to a further illustration of it shall be given afterwards. An illustration of the change of sthenic diathesis into asthenic is *found in* hydrothorax succeeding peripneumony. Again, the immoderate use of stimulants may convert any asthenic affection into a sthenic one ; as when a violent cough, a catarrh, or an inflammatory sore throat, are induced in consequence of the cure of the gout, though proper in kind, being carried to excess in degree.

ξ. Though excitement governs all the phenomena of life ; yet the symptoms of diseases, which either its excess or deficiency

diathesis will again be produced ; and the debilitating power, suited to the removal of it, may carry down the excitement below 40 into the range of predisposition betwixt 40 and 25 ; and then, by a further abuse of remedies, which should only be used in the range betwixt 40 and 70, the excitement may return to the same point from which it set out, to wit, the point of 10, and the excitability rise to its original point, that of 70.

(e) It must never be forgot, that we are nothing in ourselves, but, while we have any excitability remaining in proper capacity to be acted upon, we entirely depend on the exciting powers acting on it.

produces,

produces, do not of themselves lead to any proper judgment respecting it ; on the contrary, their deceiving appearance has proved a source of infinite error (f).

LXXII, From all that has hitherto been said, it is a certain and demonstrated fact, that life is a (g) forced state, that the tendency of animals every moment is to dissolution ; that they are kept from it (h), by foreign powers, *and even by these* with difficulty and only for a little ; and then, from the necessity of their fate, give way to death.

(f) This paragraph is from an addition in MS. to the original.

(g) not a natural, but,

(h) not by any powers in themselves, but

C H A P. VIII.

Of Predisposition.

LXXXIII. Predisposition is a middle state betwixt perfect health and disease. The powers, producing it, are the same with those which produce disease (*a*).

LXXXIV. The period of predisposition will be shorter or longer, according to the greater or lesser force of the hurtful powers *that have induced it*; and the interval between health and actual disease will be more quickly or slowly got over.

LXXXV. That predisposition necessarily precedes diseases, is evident from the fact of its arising from the same exciting powers, acting upon the same excitability, from which both health and disease arise, and of its being an intermediate state betwixt them both. And, as the excitement of health differs much from that of disease; it is not, therefore, to be supposed, that the former immediately

(*a*) The rest of this paragraph is erased.

mounts up to the latter, and skips over the boundaries of predisposition: nay, the contrary is certain and beyond a doubt.

LXXVI. Contagious diseases are not an exception from this observation; because, whether the matter of contagion act by a stimulant or a debilitating operation, its operation is the same with that of the ordinary powers, that is to say, its cause is the same (*b*). If, as it sometimes happens, no general

(*b*) The small-pox and measles are cured by the same means as peripneumony or any other sthenic disease; and, excepting the contagious matter, arise from the same stimulant hurtful powers; they must, therefore, with the same exception, be the same. The only difference is, that they are accompanied with a contagious matter, and the other sthenic diseases are not. The amount of which is altogether unimportant. For, if the ordinary powers have not operated, the affection does not come under the definition of general disease; none of the functions receding from their natural state, and the eruption amounting to no more than a slight local complaint. It is, therefore, only of use to regard the general circumstances of these diseases, making no more account of the local part, than to consider, arrange, and treat it as such. It is well known, that, when by the means used for the cure of sthenic diseases without contagion and their sequel, eruption, the sthenic diathesis is prevented or removed, the local part gives no trouble; and that the disease is never dangerous but from the neglect of that management.

But

general affection follows the application of contagion, if no undue excess or defect of excitement is the consequence; in that case, the affection is altogether local and foreign from this place.

LXXVII.

But the management is nothing else but the ordinary one in any sthenic case. If it should be contended, that, all that being granted, still the eruption may contribute a little: Be that so, and it can be but very little; what is the effect? The cure shows it; which is exactly the same as in sthenic diseases without eruption. The disease, therefore, being the same (for its mere local part is out of the question, as only requiring a peculiar exposure to cold, which is equally proper in every sthenic disease); every part of reasoning respecting it, and, consequently, that affecting the question about predisposition, must also be the same. If, therefore, other general diseases have their predisposition, so must the small-pox, the measles, and the plague itself. If it should still be said, that the eruptive diseases, though in other respects the same with the non-eruptive, differ, in so far as predisposition is required as a common circumstance between them; the answer is, that that difference only respects their local part, which, without the powers producing the disease, is insignificant and a mere local complaint. As general sthenic diseases, the small-pox and measles, and as general asthenic ones, contagious fever and the plague, to the full extent of their generality, have their period of predisposition; we may have occasion afterward to establish the question about

LXXVII. If poisons communicate any sort of morbid affection without predisposition, such an affection, for that very reason, is not to be considered as a general disease, as also for this additional reason, that *the affection* is neither removed nor relieved by the usual cure of general diseases; and the diversity of the effect proves, that both the cause and exciting hurtful power are different from the general ones. In one word, since predisposition and disease are the same, varying only in degree, the unavoidable conclusion is, that whatever, with a given force, produces the latter, *the same*, with a lesser force, will produce the former. The only cure of most poisons is their early discharge from *the system*. And if, as often happens, others, by wounding an organ necessary to life, are not curable, but fatal; the effect of both is foreign from our pre-

predisposition to them even as local diseases, but this is not the place for it; all that was required here being to settle the question about predisposition to them as general diseases. In the same point of view, all that has been said of contagious diseases, will apply to diseases in which poisons may have been concerned.

fent.

sent subject, and to be referred to local diseases.

LXXVIII. The only thing to be regarded in the powers producing either predisposition to general diseases, or those diseases *in their full force*, is the degree of the former (*c*) compared with *that of* the latter (*d*), or of the individual powers compared with one another; for the purpose of discerning the degree of hurtful power that each possesses, and the degree of curative means to be employed in order to remove the hurtful effect (*e*).

LXXIX. The

(*c*) those that produce the predisposition,

(*d*) those that produce the disease,

(*e*) The distinctions of the powers producing predisposition, and of those that excite disease, under the general appellation of predisponent or occasional causes, have been multiplied and refined upon without end. But the whole system of remote causes, as they have been called, is false in its first idea. The hurtful powers, whatever they be called, that produce diseases, also produce the predisposition to them. Which being once admitted, as it henceforth must, the whole fabric of aetiology, or of the doctrine of remote causes must fall to the ground: Consequently, simply remote causes, not divisible into predisponent and occasional; relative remote causes, or such as are so divisible; internal and external predisponent, internal and external occasional, causes;

LXXIX. The knowledge of predisposition is of great importance; as enabling the physician to prevent diseases (*f*), to comprehend the true cause of them founded in predisposition, and to distinguish them from local affections, which are widely different from them (*g*).

LXXX. As the predisposition to diseases, and the diseases themselves, are the same state; a great criterion, by which general causes; approaching causes, or *causæ propriae*, proximate causes, of which, not only one, but often several, are assigned to every disease, must cease in medical language, and the student's attention be turned away from the endless pursuit of distinctions without a difference, to the study of the solid and useful facts that nature holds up to his contemplation in great abundance, when once his eyes are fairly opened to behold them.

(*f*) from his acquaintance with the powers that lead to them

(*g*) Such is the simplicity to which medicine is now reduced, that when a physician comes to the bed-side of a patient, he has only three things to settle in his mind. First, whether the disease be general or local; secondly, if general, whether it be sthenic or asthenic; thirdly, what is its degree? When once he has satisfied himself in these points, all that remains for him to do, is to form his indication or general view of the plan of cure, and carry that into execution by the administration of proper remedies.

diseases may be distinguished from local ones, will be found in this single circumstance, that general diseases are always, local never, preceded by predisposition (b).

LXXXI. As the affection of a part is always the original source of local diseases, and

(b) An inflammation in some part of the stomach, or as it has been commonly called, "the Inflammation of the Stomach," as if it were always of the same kind, produces many symptoms, that bear so great a resemblance to general sthenic diseases, such as peripneumony, that by systematics and nosologists, it, as well as many other inflammations of internal cavities, have been united into an order of diseases, supposed all to partake of one common nature. The Gastritis, however, which is its nosological name, is essentially different, both from Peripneumony and all the other general diseases of the order with which it is associated, both in other respects, and in that of which we are speaking. As arising from certain local hurtful powers, it is not preceded by predisposition. So when I come to the bed-side of a patient under these circumstances, though I had no previous knowledge of the nature of his disorder, whenever I hear that he has swallowed ground glass, small fish-bones, or, perhaps, a great quantity of Caien pepper, I can be at no loss to discern the nature of the disease, and to find, that it is altogether local; and that for two of the best of all reasons; first, the person having been in perfect health immediately before that accident; and, secondly, that the substances which he had swallowed were such as would

and as the distinctions, we have related, are established upon the solid basis of truth; it follows, that the following disorders must be rejected from the number of general diseases, how great soever their resemblance to them may be, and however much they may conceal their own nature. Whatever affections, then, arise from any state of a part, from stimuli, from debilitating circumstances (neither of which last produce any commotion in the whole body, or only do so in consequence of the force of the local cause), from compression of a part, from obstruc-

naturally divide a sound part, or, in the language of our profession, produce a solution of continuity in it. From this, again, inflammation is an inseparable consequence. And it is equally an universal fact in the animal economy, that, when any part, whether internal or external, which possesses great sensibility, is wounded or otherwise injured in its substance, the pain arising from the inflammation superinduced, spreads symptoms of disorder over the whole system, which are liable to mislead those, who are not in possession of the criterion we here point out. As such a case, then, is not preceded by predisposition, so peripneumony as well as every other asthenic, every asthenic, disease must, from the proofs of the universality of the fact, be allowed to be, it must be local. And here again we throw the gauntlet.

tion, from other diseases (*i*), and not from the exciting powers which produce general diseases (*k*) ; all these must be rejected from the number of general diseases : and *that for the most solid* reasons ; to wit, their differing from them in the hurtful powers that produce them, in their *true* cause (*l*), in

(*i*) whether general or local,

(*k*) In the original the words are, “ *a communibus noxis excitantibus* :” that is, general exciting hurtful powers. But I have rendered it in the text otherwise, for the sake of making the sense plain, not only to my gentlemen readers, but such medical ones, as have not heard the lectures on this work. For the sake of all, then (except my own pupils, who either have heard or shall hereafter hear my lectures), let it here be added, that the powers producing general diseases, are those that act upon the excitability, and are, thereby, quickly communicated over the whole system ; while those, that act upon the solid texture of a part, so as to cut, prick, bruise, or contuse it, &c. are the powers productive of local disease.

(*l*) The cause of the inflammation of the stomach has been mentioned. To concentrate it into a definition ; it is a solution of the continuity of a solid part in the stomach, by mechanical or acrid means, followed by inflammation and pain, and, in consequence of the great sensibility of the part, propagating symptoms of disorder over all the system. The cause of general diseases is an encrease of excitement, and the inflammation accompanying those diseases arises from that encrease.

their cure (*m*), and in every *essential* respect, agreeing with them in nothing, but in a deceitful and deceiving *superficial* appearance.

(*m*) The cure of Gastritis, or the inflammation of the stomach, is to contrive means to keep the hurtful, and all rude matters, from coming into contact with the inflamed part, and leave that part to heal ; taking care, neither to increase the local affection by too sthenic a diet, nor to produce a tendency in the inflammation to run into gangrene, by the abuse of evacuations and other debilitating powers ; and if, than which nothing is more likely, the acuteness or continuance of pain should at last bring on a state of general debility, then to use the palliative means of preventing that bad consequence. The cure of Peripneumony is to weaken the system, from the very commencement of the disease, by diminishing the energy of all the exciting powers ; that of the abundance of the blood by bleeding, that of the over-proportion of the other fluids by purging, starving ; that arising from the stimulus of heat and other excessive stimuli by cold, &c.

C H A P. IX.

The general Diagnosis.

LXXXII. THE violence and danger of universal diseases is in proportion to the degree of excessive excitement (*a*), or its indirect or direct deficiency (*b*) ; as is proved by all that has been said above ; consequently, their principal variety turns upon this variation of the degree of excitement.

LXXXIII. The only diagnosis (*c*) of any importance is that, by which general diseases are distinguished from local, or symptomatic

(*a*) The excess is contained between 40, the point of health in the table, and 70.

(*b*) The cases of indirect deficiency or debility are comprehended betwixt 70 and 80. The direct are all the degrees below 40. Betwixt 40 and 55 consists predisposition to sthenic ; betwixt 40 and 25 the predisposition to asthenic diseases.

(*c*) Diagnosis is the doctrine of distinguishing diseases from one another. It was naturally thought to be of the greatest importance, when diseases were supposed very numerous, and as different from each other as their names and the various appearances of their symptoms. That, however, has been found to be altogether a mistake

tic affections, throwing the whole system into disorder, with a certain resemblance to universal diseases. To execute which, *the following marks* are to be understood *to suffice* for the detection of every general disease; first, its being preceded by a diathesis, and this followed by one similar to it, and removed by an operation of the remedies of an opposite nature to that which occasioned the disease; while, on the contrary, local affection is distinguished, first, by the affection of a part, and the disorder of the system (*d*) being such as may be traced back to that affection; and by the absence of the diathesis of the disease which *the local affections* resembles, or only its accidental presence.

LXXXIV. In order to attain to this useful knowledge, learn what is necessary from in this work, in which the endless variety of general diseases is reduced to two forms, a sthenic and an asthenic one, without any other difference but what consists merely in degree. The huge volumes of diagnostics are then in this chapter superseded; and much labour, not only irksome to the artist, but worse than useless, often pernicious to patients, is proved to be superfluous.

(*d*) not arising from any change in the excitement, but

anatomy; waste no time in superfluous study in it; peruse the works of the illustrious Morgagni; dissect subjects; distinguish remaining effects from causes that have passed away; examine diligently very many bodies of persons who have been hanged, or have died of wounds, and are otherwise sound; compare these diligently with the bodies of those who have died by lingering and often, repeated disease; compare every particular with every other, the whole with the whole; guard against the rashness of forming opinions, and, if you can, you will be among a very few, who have ever been able to do so; never expect to discover the cause of disease *in dead bodies*; be circumspect in forming a judgment.

LXXXV. As internal local ~~affections~~ affections are often a certain taint that remains after general diseases have passed away, it is therefore a matter of sound judgment *to understand*, that there is less or more reason to suspect the former, in proportion as the latter have seldom or oftener preceded them.

C H A P. X.

The general Prognosis, or general Judgment of the Event.

LXXXVI. SINCE the powers producing sthenic and asthenic diathesis, always act upon a part with more force than any other equal part; it follows, therefore, that the danger of disease during the predisposition, and of death during the disease, arises in proportion to the degree of diathesis, or to the importance of the part especially affected. But, its degree being given, the more equal the diathesis is, the more safe it is. Nor does it ever fall heavy upon an organ necessary to life, without instant danger. And hence it is, that peripneumony, apoplexy, phrenitis, erysipelas, and the gout, when the two latter affect the head with violence, are chiefly formidable.

LXXXVII. Local and symptomatic affections ought to be distinguished from general diseases, and the remarks made in the LXXXIII. LXXXV. transferred to this place.

C H A P. XI.
Indications of Cure

LXXXVIII. THE indication for the cure of sthenic diathesis is to diminish, that for the cure of the asthenic diathesis, is to encrease the excitement, and to continue to encrease it, till that degree of it, which constitutes the mean betwixt its extremes, and which is suited to good health, be replaced. This is the only indication of cure that universal diseases admit of.

LXXXIX. As both diatheses arise from an operation of the exciting powers, the same *in kind*, but varying in degree ; so they are both prevented and removed by an action of the remedies, also the same *in kind*, but opposite in degree, to that which produced them. As their cause, so is also their plan of cure, confirmed by an induction of proof (*a*), drawn from the whole course of facts and phænomena (*b*). The same debilitating

(*a*) not one or two, but

(*b*) Suppose the sthenic diathesis mounted up to 60 in the scale ; to reduce it to 40 it is evident, that the 20 degrees of superfluous excitement must be taken off, and, therefore,

bilitating remedies, which remove any one asthenic disease, remove that whole *form of diseases* ; and the same stimulant means, which cure any one asthenic disease, remove all the rest (c). Are not palsy, in so far as

therefore, that remedies operating with a stimulus, weak enough to produce that effect, must be employed : they are still, however, stimulant, and of consequence, though they remove it, still the same in kind, as the powers that produced the diathesis ; it having been proved, that they are not to be supposed sedative, both for the reasons already given, and for this additional one, that proof has not been yet brought of a single sedative in nature. As their stimulus, however, is less than that which is required to support the ordinary state of health, they are understood to be debilitating, and, therefore, proper remedies of asthenic diathesis.

(c) Suppose the asthenic diathesis to have sunk down to 20 ; to raise it up to the standard of health, it is plain, from all the propositions hitherto laid down, that the 20 degrees of deficient stimulus must be restored, and, therefore, that remedies operating with a degree of stimulus adequate to the production of that effect, must be used. All the difference betwixt this force of stimulus and that of the other, is only a difference of 40 degrees. As, therefore, the debilitating powers, though stimulant, employed in the first, removed the morbid superfluity ; so the stimulant powers used in this case, called stimulant by way of eminence, remove the morbid deficiency, and, thereby, restore the degree of excitement, that constitutes the standard of health.

it is curable (*d*), and dropsy, in so far as it is a general affection (*e*), as well as the gout, and fevers, both relieved and removed by the same remedies? And are not peripneumony, the small-pox, the measles, rheumatism, and catarrh, removed by the same remedies (*f*)? But all these reme-

(*d*) When the prevalence of debility, and that to such a degree, as to destroy the connexion that subsists betwixt the fibres of muscles, and that function of the brain which we call will, takes place in parts of the system, not only remote from the center of activity, but beyond the circulation, it must be of difficult cure; because the most powerful means of effecting that operation, act most powerfully when taken internally, and much more feebly when applied to the skin.

(*e*) What is called dropsy consists of a case which is a general disease, and a number of others, which are only symptoms of local internal diseases, and to be treated in the last part of this work. These arise from ossifications in the large vessels next the heart, from tumors, whether scharrous or steatomatous, impeding by their pressure the return of the blood by the veins to the heart. It is the general case that is here alluded to, and the public may depend upon it, that it is to be cured, but not by evacuant means, and, on the contrary, by the high diffusible stimuli, necessary to the cure of diseases of high debility, such as the extremity of typhus fever, and an expiring gout. All these are cured by high stimulants.

(*f*) to wit, evacuants, cold, and starving

dies

dies in the asthenic case encrease, in the sthenic diminish, the energy of life. In both cases the operation is a common one, *over all*, nor is there any diversity but in degree.

XC. The remedies, therefore, of sthenic diathesis are powers, exciting by a weaker stimulus, than that which is suited to health; and are in this work to be denominated, for the sake of brevity, Debilitating or Anti-sthenic Remedies.

CXI. The remedies of asthenic diathesis are powers, exciting with more force, than suits the best health; to be named here in the practice stimulants or sthenic, for the more convenient distinction of them from the other remedies.

XCII. These are to be employed with more or less freedom in proportion to the higher or lower degree of *each* diathesis, and of the local affection depending upon it. And such a choice of each should be made in such a way as that the most powerful may be adapted to the most violent case. But the cure of any disease of considerable violence, and scarce of any at all, is never to be entrusted

trusted to any one remedy (g). The use of several remedies is preferable to that of one; because, thereby, their direct energy is applied to the system to a greater extent, and the excitability is more completely and more equally affected. The person, who means that his remedies should go to a particular part (h), is equally wise, as *any one would be*, who, by cropping a twig, expects to eradicate a tree. — What remedies are of general, what of local *operation*, shall next be mentioned.

XCIII. General remedies are those, which, acting upon the excitability, by an operation diffused over the whole body, reproduce the state of health.

XCIV. Local remedies are those, which act by a similar operation on a part, and, by an operation confined to that, restore the sound state.

XCV. Since every universal disease, every predisposition, depends upon increased or

(g) What here follows to "Plura" in the beginning of the next is erased, as neither quite exact in sense, nor well expressed.

(h) and there, from a local operation, and not by an affection of the excitability, serve the purpose,

diminished

diminished excitement, and is removed by the conversion of that into the degree *which constitutes* the mean betwixt both; for that reason, in order both to prevent and cure diseases, we must always use the indication proposed, and stimulate or debilitate; never lay by, nor trust to the supposed powers of nature, which have no real existence.

XCVI. In the indication of cure, the only regard to be had to morbific matter, is to allow time for tis passing out of the body. For whether it acts, like all other exciting powers, sometimes by a stimulating (*i*), sometimes by a debilitating operation (*k*), or whether *its action consist in* only giving the peculiar form of its respective disease, and, thereby, adding a local affection to a general one; in either case there is no room for a new indication.

XCVII. For if the disease, as a general one, be properly managed, every eruption, and its consequences, every species of inflammation, every species of ulceration, give way

(*i*) as in the small-pox and measles,

(*k*) as in contagious fevers and the plague,

to the happy effect of the general plan of cure. And, when a contrary event takes place in consequence of a bad method of cure, the local symptoms are proportionally aggravated. This is proved in the small-pox long ago, and in the measles lately (*I*), but, with equal certainty; it is proved by the plague, *at least*, as often as it has been treated with any judgment, and by remedies proper in kind and administered in due proportion; it is proved by the malignant, or

(*I*) After the discovery of the nature of the catarrh, the catarrhal symptoms in the measles came naturally to be enquired into. A full trial was given to the refrigerant debilitating plan, in the author's own family, as well as among several patients, and lastly among near an hundred patients in England, treated by the father of one of the author's pupils; who all did well, while others, who were kept warm, according to a practice that Dr. Sydenham had left as he found it among his Alexipharmac contemporaries, many died, and all had a bad recovery. The Author's own son and name-son, a boy about six years of age, was stript half naked and allowed to go out and play as he pleased. The only check upon him was, his being allowed nothing but fluid vegetable matter, when he returned home with a keen appetite. This matter will be further explained, and in a more proper place, afterward. But, what has been said, was in illustration of the hint in the text.

gangrenous sore throat (*m*), and by other cases of typhus, with a similar affection of a part. In the two last, the danger to life depends upon the degree of the general affection, without which there is no occasion for *any* apprehension from the local. And the same proposition is so true, with respect to the *three* former, that, though the *contagious* matter has been applied, yet, without the general hurtful powers preceding, no

(m) This case of disease has been considered, as wholly and solely seated in the throat, and therefore conjoined with other diseases, where that local affection was understood to be the essential symptom, and a symptom that connected all the cases. But the other cases are asthenic, or to be cured in the ordinary way of bleeding and evacuation; while such a practice is certain death in it, as being not only an asthenic case, that is a case of debility, but one of the highest; and, instead of depending upon the affection of the throat, the affection of the throat depends on it. Give stimulants to the patients labouring under the inflammatory sore throat, and you kill them; bleed, purge, vomit, and starve, in the gangrenous case, and you ensure the same fate. Such, however, are the diseases, that systematics, nosologists, and other strangers in the city of nature, have, from their ignorance of the place, in spite of their natural distance, brought all together. (See Dr. Cullen's Genera Morborum, all the three editions, genus VII.) As soon will Mile-end and Knightsbridge meet; as soon will London place itself on the Calton-hill, and become an elevated suburb of Edinburgh.

true general disease arises, the danger increases in proportion to their violence, and the whole cure depends upon the general remedies. These are *so many* facts, that show, that no matter, whether of a contagious nature or not, contributes towards the cause of the general disease, which it accompanies or distinguishes, or, if it contributes any thing, that in that it differs not from the usual hurtful powers.

XCVIII. As, both in overabundant and deficient excitement, the sound perspiration is diminished during the predisposition, and suppressed in the course of the disease (which has been already hinted, and will more fully be demonstrated afterwards); it is, therefore, proper that it should be carefully supported and kept up, for the purpose of discharging every hurtful matter from the body. But neither does that suggest a new indication of cure; since the only means of effecting it are those, which otherwise remove both the diatheses in proportion to their force, and which are not serviceable as local, but as general remedies (n).

XCIX.

(n) The discovery of the support of perspiration upon a principal, which extends to all the phenomena of the

XCIX. When any one, who during the former part of his life has lived luxuriously, has now, at an advanced age, either from

inten-

subject, was reserved for this work. The heating remedies of the Alexipharmac physicians were intended to support the perspiration, and, thereby, throw out a morbid matter: Which was a very unlucky thought in the sthenic diseases, the principal of which were peripneumony, of which we have already so often spoken; phrenitis, in which the brain was supposed to be inflamed; and the small-pox and measles; because the nature of those diseases, and the tendency of all the powers producing them, was to check the perspiration, (see No. LXI.) from the excess of their stimulus; consequently, the addition of more stimuli, by way of cure, was to check it still more. But those diseases are only three out of the hundred of general diseases: whereas the followers of a great man, who corrected that abuse through a fiery persecution, *ως δια τύπος*, against himself, went all into a much worse extreme. Their imitation of their master transported them into a rage to carry the plan of promoting perspiration, by the same means, through the remaining 97 of the hundred. And they succeeded with a vengeance. For, as it is the nature of those diseases to transmit too great a quantity of fluids through the perspiratory pores, in consequence of the debility, which constitutes their cause; certainly the encrease of that debility, that is to say, the encrease of the cause, should encrease the effect. Which it most certainly did, through all the systems that have appeared for more than a century past. "Stulti dum fugi-

intention or compulsion, abated a good deal of his usual indulgence, and *yet* preserves some appearance of an abundance of fluids and of vigour; he must not, therefore, as is commonly done, be supposed to labour under plethora (o) and excessive vigour; but, on the contrary, unless there be a recent and evident cause for it, which is possible, he must be held for one who labours under indirect debility; and so much the more, if, to hurtful powers already too invigorating, in the number of which are all those which fill the vessels, directly debilitating powers have succeeded: And it is not a debilitating or asthenic plan of cure, which would encrease the direct debility, nor one too sthenic (p), which would encrease the indirect debility, the principal part of the cause, and, consequently, encrease the force of the disease: But it is a middle method, which is

“ *unt vitia, in contraria currunt.*” This is intended only as a hint, to enable our intelligent readers to understand the fuller explanation of perspiration, which will soon follow.

(o) or an over proportion of blood,

(p) or stimulant,

commonly called tonic, that should be pursued (q).

C. Since to the degree of disease (under which, to make few words, let predisposition

(q) The blood is made from the food, and elaborated by the powers of digestion ; that is, the more nourishing food is taken in, and the more strength there is in the system to convert it into real blood, the more, and also better, blood will be produced. The quantity of blood, so produced, may go to excess, as well as every other exciting power, the principal of which it is. But the question is, when, in whom, and under what circumstances, is an over-proportion of blood generated ? Common sense would say, not at the beginning or the end of life, when the degree of nutriment used is far from being so considerable, as at the middle and vigorous period of life. Again, which of the two sexes are supposed most liable to generate this morbid redundancy of the vital fluid ? A simple creature, aided by nothing but natural sagacity, would be apt to say, the men ; both because they eat more, and, from the greater variety of the modes of promoting digestion to which they are addicted, digest better. How medical systematics would laugh at such simplicity ! How contrary that would seem to mystery, their Lydian stone, under which they think all wisdom so safely lodged, as to fear it would be dangerous to turn it up, and examine what was under it ! What sort of habits are most liable to it ? Not those, who have the greatest bulk of simple solids, whether they eat or not, much less those, who are liable to bleeding discharges, who can neither eat nor digest ; but all those who eat and digest will,

also be (*r*) comprehended), the degree of curative force should be accommodated; in the indication, therefore, of cure, regard should be had to age, sex, habit, constitution, climate, soil, in fine, to the operations of all the exciting powers in general, of all the hurtful ones in particular, of all the remedies, whether they have previously been administered properly, or improperly.

CI. The subjects of direct debility are women, persons under inanition (*f*), those who have had an insufficient share of stimulus; those who have a delicate set of solids; those who have been accustomed to moisture, whether from the climate or soil; finally, all persons in a languid state, without a preceding vigorous one, either from the powers that produced their diseases, or from the mode of cure employed to remove these.

CII. On the contrary, the persons in whom indirect debility is prevalent are adult males; those who are full and over stimulated, and so much the more, the longer

(*r*) For comprehenditur in the original, now read comprehendatur.

(*f*) or an empty state of the vessels,

the

the latter has been the case ; those who have formerly had vigorous habits ; those who have been overheated, whether with moisture, without it, or from whatever source ; in one word, all, whose former vigour, either from the ordinary hurtful powers, or improper methods of cure, is now converted into a state of languor.

CIII. In the cure of indirect debility, whatever be its degree, from whatever sort of excessive stimulus it has arisen ; of the stimulus, which is to be employed as the chief remedy, not much less than that, which produced the disease, should, at first, be used ; and then less and less, till the disease is cured.

CIV. When the first part of the cure is completed, and the convalescent now can use the more permanent and natural stimuli, he should gradually be confined to them, and drop the use of the more diffusible ; with this distinction, that if he has been in the habit of using a considerable deal of stimulus, he may be indulged in something extraordinary in that way for some time (t).

CV. The

(t) This indulgence is chiefly intended for those, who have gone to some excess in the use of the stimulus of

CV. The cure of the hurtful effect of any stimulus should first be set about by changing it for a lesser one, this for a still lesser ; and the intention of cure should be always drink, and who still, without it altogether, are not capable of taking enough of food and other durable stimuli for their support. The aim, however, of all such persons (with the exception only of those who are of an advanced age, or of those whose debility threatens to run a certain course), should be to lay aside the daily use of drink altogether, and to indulge in occasional approaches to excess as seldom as possible. Some persons, even beyond the fiftieth year of their age, when they found they could eat and perform all their other functions with vigour, have had the resolution to abstain from all sort of strong drink, not only with impunity, but with a most wonderful improvement of their health and vigour. Another advantage, arising from this management, is, that, whenever any disease, to which a person may be liable, (such as the gout, various affections of debility, chiefly prevalent in the alimentary canal ; in a word, the diseases of either form of debility), either returns, or threatens to return ; a return to the use of wine and other strong drink will then become an excellent remedy, and even supersede the use of the high diffusible ones. That practice would be attended with this further advantage, that, when the occasion that called for it was over, and the disease prevented or removed, the person might again lay aside the use of drink, with all the good consequences he had formerly experienced from the practice, and thereby both prolong his life, improve his health, and enjoy the proper and vigorous use of all his functions,

to pass from the use of the more violent and diffusible, which nature in her sound state rejects, to that of the more durable, and more suitable to nature when unoppressed, till the healthy state can at last be upheld by the usual supports (*u*).

CVI. In the case of indirect debility, when the view is to restore vigour, a debilitating plan of cure should be avoided; because no sort of debility is to be cured by another, nor any degree of it by any degree of another. It is only in the progress to indirect debility (*x*), that directly debilitating powers are suitable for the purpose of supporting the vigour, in that case, in danger of being worn out (*y*): such as cold bathing, lowering

(*u*) In many diseases of debility arising from a former excess, the stimulant effects of which have passed away, the use of cold water, though in gratification of the patients craving, and of other thin potions, as well as of vegetable aliment in a fluid form, and of evacuation of every kind, is most hurtful.

(*x*) Betwixt 40 and 70.

(*y*) At 65 there are only 5 degrees of vigour left, which, either by a continuance of the same excessive stimuli that produced them, or, by the addition of a degree proportioned to that effect, would be worn out. Remove some of the stimulant powers, the excess of excitement will

lowering the diet, weak drink, and a similar abatement in the use of the other stimuli.

CVII. For the cure of direct debility, we should begin with the smallest degree of stimulus, and then rise to the use of a greater and greater, till the morbid abundance of excitability be gradually worn off, and the health at last restored.

CVIII. When the disease arises from the want of any one stimulus, the return to its use should be gradual, and facilitated by other stimulants more powerful *than itself*.

CIX. Also in this part of the *general* method of cure, debilitating, either directly or

will be diminished, suppose to 60; remove more of the former, and the excess of the latter will be further diminished, till the excitement is reduced to its natural healthy standard of 40. The state of excitement, then, within this range, that is, between 40 and 70, especially in proportion to the approach of the excess to 70, is that, to which only directly debilitating powers should be applied. In all cases above 70 where the excitement is gone, and below 40 where it constantly decreases all the way, till it is lost at 0, directly debilitating powers are pernicious. How bad then must the only practice be, that we find in books and lectures, a practice transmitted from the first accounts of our profession, and which deals in the use of no other means but directly debilitating ones? Bad, indeed, must it be!

indirectly, should be abstained from; both for the reason formerly given, and also, because the stimulant plan of cure, which is the only proper one, when carried to excess, converts the sthenic diathesis (*z*) into the asthenic (*a*), and the latter into death (*b*). For which reason, while, on the one hand, the debilitating powers, mentioned before, are to be avoided; it must, on the other, not be forgot, that the force employed in the cure should be accommodated to the degree of morbid state. The thirst, which is occasioned by debility, is increased by draughts of cold water, is hurried on to (*c*) nausea and vomiting; is quenched by pure wine, or spirit, which prevent the troublesome symptoms that would otherwise follow. Pure wine (*d*) increases the thirst, which proceeds from a sthenic cause, and excites the same troublesome symptoms, which cold water does in the other case; cold water sates it, and prevents the future tumult.

(*z*) that between 40 and 70,

(*a*) between 70 and 80,

(*b*) at 80.

(*c*) the higher symptoms of

(*d*) which is one of its principal causes,

CX. Since, therefore, the same powers excite all the phænomena of life, and produce sometimes an excess, sometimes a just proportion, sometimes a deficiency, of life, according to the various degrees in which they are applied ; and since the same observation extends to the same powers, when they are applied as remedies of diseases ; let it, therefore, be an universal rule, never unguardedly to convert either diathesis into the other. And, as every disease, that debilitating powers remove, is fthenic, every one, that is cured by stimulant means, asthenic ; the knowledge of that may furnish the proper means of caution against mistake.

T H E

S E C O N D P A R T.

C H A P. I.

*Of the hurtful Powers, which produce either
Diatheſis, Sthenic, and Aſthenic.*

CXI. THE powers producing the state of the body, upon which the predispositions to sthenic or asthenic diseases, or those diseases themselves, depend, that is, that produce the sthenic or asthenic diatheſis, are those which were mentioned before (a).

The hurtful powers producing both Diatheſes.

CXII. Heat, which is necessary to the production, the growth, and the vigour of animals and vegetables, as also to the form of

(a) XI. XII.

the elements (*a*), from *its action upon* the surface of the animal body, directly stimulates the whole; an effect which it also exerts upon vegetables. From this action of heat there is no exception when it keeps within a certain range of scale; but when it is either deficient, where it takes the name of cold, or excessive, its effect varies (*b*). This stimulus, in a moderate degree, produces its effect in due proportion, in a degree above that *the excess of* its action is such as to produce more or less of sthenic diathesis.

CXIII. Because the action of heat is increased somewhat more upon the surface than in the internal parts, where the temperature is nearly stationary, it, therefore, stimulates more in the former than in the latter. Hence, in the phlegmafiæ (*c*), the inflammation is always external. The same agent increases the tone of the muscular

(*a*) In a certain degree of diminished heat water freezes; but if such a diminution of it could be found as to freeze air, the whole fabric of the universe would rush into dissolution.

(*b*) as shall be shown by and by.

(*c*) diseases with inflammation of a part.

fibres every where, and consequently their density (*d*). Hence, as the diameters of all the vessels are diminished, so those of the extreme vessels every where, and especially in the skin, where a greater force of the cause is exerted, are often entirely effaced. But actual suppression of the perspiration is incompatible with predisposition, and arises only from the diathesis, when it arises to the just measure of disease (*e*).

CXIV. Hence in the measles and small pox, the irritating matter, together with the perspirable, is detained. And not only in these, but all other sthenic diseases, the perspiration is suppressed, the excitement both upon the surface and in the rest of the body is increased, and catarrh particularly induced (*f*).

CXV. Heat,

(*d*) See Chap. V. Which produces a suppression of perspiration by some imputed to constriction from cold, by others to constriction from spasms; both erroneously.

(*e*) The perspiration is diminished during the predisposition; but the condensing power is not sufficient to suppress it, till it attains the degree of producing the disease.

(*f*) Calefacients, or heating things, were one of the means that the Alexipharmac physicians employed to force perspiration; but the principal is now laid down, that

CXV. Heat, in extreme excess, whether it acts hurtfully by its duration or intensity, constantly debilitates, by diminishing the tone, and producing laxity instead of density. Which effect is somewhat greater upon the skin, to which the direct energy of heat is applied, than in the interior parts, in which there is little change of temperature. Hence arises sweating as in the torrid zone; hence the diameters of all the vessels, and particularly of the perspiratory vessels, are enlarged. Hence proceed the colliquative sweats in fevers, and a similar state of the belly. Hence, also, corruption of the fluids, and not from a state of them directly produced by corrupting powers (g).

CXVI.

that shows they produce the opposite effect. Hence the merit of Dr. Sydenham in recommending cold, both in the small pox and in peripneumony, in which disease he took his patients out of bed, and placed them in an easy chair. Happy had it been for the profession, and happier for the sick, had he extended his improvement to the measles and catarrh, and all the rest of the few sthenic diseases, and stopt there; but by extending his antiphlogistic and refrigerant doctrine to the whole form of asthenic diseases, the harm and good he did were in the proportion of 97 of the former to 3 of the latter.

(g) The idea of certain powers of a tendency to corrupt our fluids, and of certain others to correct that effect, and

CXVI. The same power in the violent measles, in the confluent small pox, in fevers, and in every kind of asthenic (*b*) disease, in which the perspiration is deficient, does not lessen the deficiency (*i*), though it expands and enlarges the vessels, but, on the contrary, encreases it (*k*).

CXVII. Cold, inimical to animals, vegetables, and the elements, weakens the rest of the system, and still more the surface, the temperature of which it almost only diminishes, *and it produces that effect* always by a direct operation, always in proportion to its degree. Cold, equally as excessive heat, produces atony and laxity of the vessels, gangrene, and the other effects of excessive heat (*l*).

and take off the degeneracy, long prevailed in the minds of systematics, and is not among many of their followers yet laid aside. Heat was one of the number; but that it acts so, is disproved not only by the explanation here given, but by the certainty of the fact, that the same effect is produced by cold, as well as every other debilitating power.

(*b*) or disease of debility,

(*i*) that is, does not encrease the perspiration,

(*k*) *i. e.* diminishes perspiration.

(*l*) In Siberia the phænomena of cold on the human body very much resemble those of heat.

CXVIII. That these effects of the extremes of temperature arise from debilitating, not generating putrefaction, from an affection of the excitement, not of the fluids, plainly appears from this; that other exciting hurtful powers, such as famine, an overabundance of blood, as in the case of those who die of peripneumony, and similar hurtful powers, which neither have been, nor can be, believed to affect the fluids by any direct operation upon them (*m*), produce both the symptom of corruption, and all

(*m*). Famine, acids, and cold, have all the same effects upon the fluids that the putrefying substances were supposed to have; but surely acids produce no putrefactive process; neither can want act as positive matter; nor cold be supposed to produce any such effect. In a word, any corruption that is produced, arises only from the weakness by the heart and arteries, predominant in their extremities. They cease to act; the fluids within stagnate, and, under the heat of the body, degenerate. This is the true cause of the corruption. And the remedies are not correctors of the corrupted mass; but whatever invigorates the whole body, and consequently the heart and arteries. Nothing can be more absurd than to suppose that a glass or two of wine and water, a little bark, and so on, after being blended in the whole mass of fluids, should go to a portion of fluids in the extreme vessels, even without the circulation, and, by mixing with it, change its qualities.

the rest of the symptoms, and the same stimulants, which remove the latter, remove the former. Nay, the supposed antiseptics, such as wine, Peruvian bark, acids, and other things of that kind, are either entirely destitute of that operation, or they neither are given, nor can be given, in that quantity, by which they can have any tendency to affect the mixture of the fluids: In fine the effects of inanimate matters upon one another are never, with any propriety, transferred to living systems. Though, then, the fluids are frequently corrupted, the corruption is the effect of weak vessels not giving a sufficient mixture or diffusion to them, but is never the cause.

CXIX. The disagreeable sensation both of cold and of heat in extreme, is also hurtful, by diminishing the sum total of stimulant operation, which, in so far as it is agreeable, is serviceable by stimulating (*n*).

CXX. As cold is naturally so debilitating, and all debilitating powers diminish excitement, it is, therefore, never of service but in asthenic diseases, that is, in those which are

(n) See note (*r*) in par. XXI;

in their progress towards indirect debility (*q*) ; because the excitability, already too abundant, can never be rendered more abundant, nor, when too much wasted, rendered more accumulated, without an aggravation of the disease (*p*) ; excitability admitting of less stimulus in proportion as it is either more abundant, or more ultimately wasted. When the debility is moderate, a mistake of this kind is less evident : but in a high degree of debility of either sort, a violent disease, or even death itself, may be the consequence of the smallest encrease of debility (*q*).

CXXXI.

(*o*) See CVI.

(*p*) XLVI. XLVII.

(*q*) When the debility of the direct kind is very moderate, that is, the excitement has not sunk much below XL. in the scale, the short suspension of a few degrees more would not do much mischief. Suppose the excitement at 30 instead of 40, and a dip in cold water has brought it down to 25, the effect even of that is not of a trifling nature ; the debility by this means has passed the whole range of predisposition, and arrived at the degree where disease commences. It is true the excitement will rise the moment the person is taken out of the bath ; but still something is lost. The very accumulation implies a reduced disposition in it to be acted upon by stimuli. A person, who has abstained from any one stimulus

CXXI. As cold as well as excessive heat relaxes, a fact that is seen in the cure of the small pox, and of every sthenic disease, from that we are to understand, that the property of cold in constricting (*r*) inanimate matter does not extend to living matter (*f*). The diminution of the bulk of the surface (*t*) arises from debility of the vessels, not sufficiently propelling the fluids, and filling the vessels. In this way does cold produce asthenic diathesis.

CXXII. But, as always less and less excitement arises in proportion as stimulant operation has been applied, till at last no more at all is added ; cold (*u*), as well as any stimulus for a given time, when it is again applied, will not bear near so much of it as he did formerly. If he abstains longer, he will bear still less, till, at last, he will be fit to bear none at all. If, on the other hand, the excitement should have fallen to 10, an addition of debilitating power would be attended with the utmost danger, not only of increasing the disease, but of inducing death.

(*r*) or condensing,

(*f*) It has been alledged, that the diminution of the bulk of the body by cold, furnished an argument in favour of its being an astringent to it, as it certainly is a condensor of dead matter.

(*t*) or shrivelling of the skin,

(*u*) on that footing of action,

other directly debilitating power, may, according to various degrees of it, produce health and all the degrees of sthenic diathesis (x); *in the following way, however, only.* It stops the waste of excitability, makes the body more susceptible of stimulant operation, checks the progress to indirect debility, and stems the latter. But it only effects that by checking the career of heat and other stimuli, which accelerate indirect debility, and by keeping the excitement within the boundaries of vigour. And hence vigour in cold countries, when the body is defended by *clothes, the shelter of a house, the warmth of a fire, as well as by its own proper motion.* Hence also the bracing, by cold, of parts that have been relaxed by excessive heat. Lastly, hence a remedy for the corruption of the fluids, *which consists in* invigorating the vessels, not correcting the degeneracy of their contents. This effect of cold upon the surface, which is nearly the only part of the sys-

(x) from the highest to the lowest, from that degree of it, which, under the circumstances here mentioned, produces a moderate catarrh, to that, where the modification of its action rises to the degree of being adequate to the effect of producing a peripneumony.

tem subject to refrigeration, is somewhat greater than in the internal parts.

CXXIII. The debilitating effect of temperature, and therefore also its hurtful tendency, is increased by moisture.

CXXIV. Of the articles of diet, the only food in danger of being too stimulant, is flesh and land-animal food, used in great quantity. Meat too salt, and hardened, especially when it has now begun to spoil, is an exception.

CXXV. The same thing is to be said of condiment; of which a very small portion, upon account of its high degree of stimulus, is sufficient.

CXXVI. Spirituous or vinous drink, in which the alkahol is always diluted, stimulates, more quickly, and more readily, than seasoned food, and its stimulus is in proportion to the quantity of alkahol that it contains.

o. But there are stimuli, which possess an operation as much quicker, and more powerful (*y*), than these just now mentioned, and which are the agreeable *and*

(*y*) than that of the articles of diet:

proper ones in health, as their operation is of shorter duration. To these the name of diffusible is to be given. They rank above strong drink in the following order :

π Next to strong drink, and immediately above it, *stands* musk ; above it volatile alkali ; higher than this æther ; and the highest of all, as far as experiments have yet reflected light upon the subject, is opium (z).

ρ. These, according to their degree, possess the property of converting the asthenic diathesis into a cessation of all diathesis in health ; this into sthenic diathesis, the sthenic diathesis into indirect debility, and the last into death ; all which they accomplish with as much more ease and promptitude, as they are more powerful than all the rest of the stimuli (a).

CXXVIII.

(z) We are pretty certain of the exactness of that place in the scale which we have assigned to opium. Nor is our arrangement of the others uncountenanced by the same kind of criterion ; but having not yet made all the trial necessary to establish the proposition, we defer any final decision of this point to an after opportunity.

(a) In the use of the diffusible stimuli great care should be taken to apply them only to the cases that require them ; which are only the diseases of the highest debility, or

CXXVII. The stimulus of the articles of diet, not exclusive of the diffusible stimuli, should be denominated direct, because it acts directly and immediately upon the excitability of the part to which it is applied. The direct stimulus, at least in so far as it regards the food, is assisted by another, depending upon a distention of muscular fibres, on which account, for the sake of distinction, the latter should be called Indirect. As the latter is afforded by the bulk of animal and vegetable food, so the former is produced by a relation of the stimulus to the excitability. The indirect acts upon the living solids in so far as they are to be considered as simple; the direct acts upon them as living only. From a long and habitual

or of which the intolerable pain, besides tormenting the patient, threatens the worst consequences. All from the end of the CXXVI. is an addition in the MS. this most valuable part of the exciting powers, whether considered as a part of diet, as the chief of them are among the Turks, or as used for the prevention of diseases, to which there may be a strong bias in the habit, or as remedies of these diseases when they have come on, or as hurtful powers when improperly employed, having been left out in both the editions of the Latin work that have yet been presented to the public.

excess

excess in food and drink, at last indirect debility arises, and the group of diseases depending upon it (*b*).

5. All these stimuli have also a tendency to produce asthenic diathesis.

CXXVIII. All vegetable food (*c*), and too sparing an use of animal, as also meat too salt, and deprived of its native juices by keeping, when better nourishing matter is withheld, constantly weaken, and thereby produces asthenic diathesis through all its degrees. Hence *arises* that remarkable imbecility both of body and mind, which distinguishes the Gentoos, who follow the

(*b*) When I make a meal of animal food, much less bulk is requisite to give the same nourishment, than when vegetable matter is the only one made use of. What makes the difference is, that there is something in the animal matter which affords a nourishing stimulus independent of its bulk; and though the vegetable matter is not altogether devoid of that kind of stimulus, it, however, possesses it in a much smaller degree. Both stimuli are necessary, but chiefly the direct, by which animal food chiefly acts; and therefore is the vegetable the worst and weakest sort of aliment, because it chiefly acts by its bulk of matter. A small portion of the indirect stimulus is necessary; hence the very general use of bread. But our vigour of mind and body depends upon the direct.

(*c*) taken in any quantity,

Brahminan ceremonial of religion. Hence the diseases of the poor every where (*d*); hence scrofula (*e*), fevers (*f*), epilepsy, cough with profuse expectoration and hemorrhage, and the whole band of asthenic diseases. The direct debility flowing from this hurtful power, effects the stomach somewhat more

(*d*) The nourishment of animal food needs only a little support of tension from a moderate quantity of bread; but that vegetable food, even when supported by strong condiments, in no quantity whatever, ever gives due support, appears plainly from the instance brought in the text. Of the poor labouring people in Scotland, who chiefly live on vegetable matter, it would take three to go through the work that one Yorkshire man, nourished by bolting fat pork, can easily execute. And among the Gentoo servants a dozen is not able to perform as much work as a single English servant. A year's experience of vegetable food, and its pernicious consequences (vide the Preface) has now put the question, about the supposed salutary effects of low living, and the pretended virtue of a rigid observance of it, beyond all doubt, and brought irrefragable proof of its weakening effect.

(*e*) Scrofula, though supposed hereditary, produces its worst effects, not from that circumstance, but the method of management, both for the prevention and cure.

(*f*) Various particular, and sometimes specific causes, have been assigned for the production of fevers; but it shall be proved, that, whatever debilitates in a high degree, is adequate to that effect.

than

than any other equal part (g); the consequences of which affection are loss of appetite, stomach sickness, vomiting, very loose belly, and similar disturbances of the first passages. *

τ. But while *improper aliment* produces such effects, these will also be induced by an ultimate excess in the use of food *consisting* of the proper material; which must be inferred from the universal effect of all the other stimulant powers, *when their operation has been pushed to the same excess* (b). The mean betwixt the extremes of the hurtful powers, in so far as diet is concerned, is abstinence (i).

CXXIX.

(g) Chap. IV.

(b) It will now appear how far an assertion of the opposers of this doctrine is just or calumnious: low living and starving are condemned for the facts and reasons assigned; but can it now be said, that the doctrine is friendly to intemperance? On the contrary, it has reduced the fact to its proper standard, reprobating the extremes, and establishing the mean under which virtue takes her post. It is certainly as immoral, or irreligious, if you will, to hurt health, and hasten death by abstinence, as by a luxurious excess. There is a gloomy luxury in superstition, a cheerful one in sensuality; both bad.

(i) At least it stands at the foot of the scale of directly debilitating powers, if they are to have the rank of standing uppermost, as being most hurtful, and to be followed

* These are principally the Diseases by
Seamen in a long Voyage on salt
provisions.

CXXIX. The withholding also of the use of condiments, which, without animal food (*k*), are not sufficient to give strength, gives an additional weakness.

CXXX. Strong drink, and the diffusible stimuli, are never necessary to young and strong people, upon account of their rapid tendency to indirect debility, from their high stimulant power; nor are they even safe. But, in persons who have been accustomed to them, in the *case of those who are advanced in age, and of those who are weak from that or any other circumstance, cold, watery, acid, or fermenting drink, has a great influence directly, and excess in the use of strong drink indirectly, in producing asthenic dia-* thesis.

v. If the diffusible stimuli, after they have been employed, are too quickly withdrawn, they, in the same manner as the more durable, allow the excitability to accumulate, and indirect debility to come on, and conse-

by the enumeration of the indirectly debilitating powers, as being next so, which, by the way, is the rank that nature seems to point out for both.

(*k*) as in the case of the Gentoos, who make use of a great deal of condiment with their vegetable aliment.

But

quently

quently may be said to produce asthenic diathesis. But asthenic diathesis is never the consequence of withdrawing their operation, at least worth speaking of, but when that has been habitual. And all the hurtful effects which they have most untruly, to the great detriment of mankind, been said rather, than are now said, to occasion, arise not from themselves, but from the want of knowledge how to manage them. And as this operation of diffusible stimulus ought to be supported by that of a durable; at the same time, it must not be confounded with debilitating powers. What disturbances, during the operation of opium, will not a breath of cold *air*, affecting the body, create? And how easily, as well as quickly, are they all removed, by carefully covering up the body? (1).

φ. Both

(1) As there are cases of indirect debility from an habitual abuse of strong drink, there are also others from a mistaken or intemperate use of the diffusible stimulus, particularly opium. Both of them require nicety and skill in the management of them for their cure; for which consult Chap. XI. from par. CII. to CX. The management is out of our present question; but what affects

q. Both the other diffusible stimuli, as well as opium, and the more durable one of strong drink, by an indirectly debilitating operation, produce asthenic diathesis.

CXXXI. A further stimulus is an abundance of chyle and blood; by this the excitement is increased every where, and particularly in the blood-vessels, and *increased* in degrees proportioned to its degree of abundance. The quality of the blood, at least, as a cause, is of no effect, it is the quantity only that is. The quantity, by *its action* of distending the muscular fibres of the vessels, acts with a constant impulse (m).

The

feats that is, that, from this observation, we can clearly find, as it was to be expected from the analogous operation of the other exciting powers, that the diffusible stimuli, when their operation is carried to excess, will also produce an asthenic diathesis of the indirect kind.

(m) The blood by its quantity distends the muscular fibres of the vessels; that distention stimulates the excitability in the fibres, and produces excitement, commonly called their irritability; thus excited, the fibres contract; the contraction of each portion sends the wave onward to another portion: when the wave has passed any given portion of vessel, its fibres again relax, and make way for the next, which is pushed along in the same manner. In this

The doctrine of plethora, so noted *in the* medical schools, is only applicable to *sthe-*nic

this way the circulation goes on in all cases while life remains; contraction and relaxation constantly alternate; the former propelling the wave before the latter opens to receive the next. But the vessel may be in different states with respect to its power of either contracting or relaxing. When it is weak, which every part of the vascular system is as often as all the rest of the system is weak, both the contraction and relaxation of each portion of vessel is imperfect. The contraction from its smallness, and the relaxation from its being more owing to the passive state of the simple, than the active state of the living, fibres, leave betwixt them a large diameter upon the whole. But, in a vigorous, or *sthenic*, state of the whole system in general, and of that of the vessels in particular, the contractions are strong and forcible, and the relaxations active and in consent with the contractions. Hence the diameter of each portion of vessel is diminished upon the whole, and while the quantity of the blood is at the same time increased, the action and re-action are great; the blood distends with mechanical, the vessels resist with vital energy; the mutual effect of both upon the excitability is considerable; all is activity, all is force, and these are in exact proportion to their cause over all the *sthenic* dia-thesis. This state of the vessel, in so far as it respects the muscular fibres, is its tone; in so far as it respects them as simple solids, its density. It is a *sthenic* state of the vessel, opposed to the *asthenic* first described, which is distinguished by the epithets of atony and laxity; which, however,

nic diathesis, and takes place in proportion to its degree (*n*).

CXXXII. The effect of distention (*o*) is increased by the velocity of the blood, both as arising from other sources, and especially from that motion of the body which its own muscles perform, a motion, which, by compressing the veins, carries the blood more quickly back to the heart.

CXXXIII. Nothing is more effectual than these two *last mentioned stimuli*, in producing sthenic diathesis, and the diseases depending upon it. Those diseases are violent in proportion to the over-proportion of the blood, and the rapidity of the force with which it flows ; a fact, that is proved by all the exciting powers, all the symptoms of those diseases, and, especially, the pulse of the arteries ; it is also proved by the great efficacy of bleeding,

however, opposed to tone and density are only relative terms, employed for convenience, not absolute ; like the term cold, used for diminished heat, they only signify a diminution of tone and density.

(*n*) It is a curious fact, that, while the truth of this proposition is demonstrated, the plethora of the schools is only understood of a state of the vessels diametrically opposite to a just idea of plethora.

(*o*) that we have been describing,

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I

purging,

purging, abstinence from food, and rest, in
in the cure of the disease (p)

CXXXIV. While an over-proportion and velocity of blood is a chief cause of sthenic diathesis ; there is nothing more powerful in producing the asthenic, than that penury of blood which the greatest celerity of motion accompanies. Hence, the smallness, weakness, and quickness of the pulse : Hence the excitement is diminished every where, and, in preference to other equal parts, in the whole sanguiferous system, and that in exact proportion to the penury.

χ. From this state of the vessels, arises the discharge of blood from the lungs, from the uterus, from the anus, or around the anus, from the urinary passages, and through the perspiratory pores. Hence arise disturbances of the stomach, want of appetite, loathing of food, and, therefore, upon account of

(p) Relief from bleeding and other evacuations is certainly a good argument for the cause of the disease being so far owing to an over-proportion of blood ; and rest is as good for the proof of agitation of the vessels being concerned in the cause : besides, exercise is otherwise a noted cause of quickness of the pulse : and the hurtful powers and symptoms are equally decisive.

want of nourishment, and the languor of the digestive organs, always less and less blood arises in the system. So great a penury of blood is the principal origin of bleeding diseases; which never happen but in the asthenic state. The same *penury of blood* acts in such a manner, and chiefly affects its own vessels, because, according to a law so often mentioned, its debilitating energy chiefly falls upon them. In sthenic diseases, that have advanced to their height, or a little beyond it, a few drops of blood from the nose, or a dropping of blood from the same, or any other part, demonstrate only a pre-disposition to indirect debility, but not an establishment of it, and that the matter still remains within the operation of excessive stimulus (q).

ψ. Thus

(q) Who ever heard of a flood of blood coming from the lungs in a peripneumony? Or, who has not heard of it in consumptive cases; which are the diseases depending upon the laxity of vessels of which we are speaking. What vigorous woman, found in all her functions, as a woman, ever fell into perpetual floodings? What had been the state of these women before the disease? Did they eat and digest so completely, as that there was any reason for supposing their vessels were filled with blood?

ψ. Thus it is not an excess in the quantity of blood, but laxity and atony from its deficiency, that upholds the affair of bleeding discharges ;

No ; long before the arrival of the disease their eating was puny, and, considering the kind of matter they made use of, to wit, vegetable, it was not to be supposed more beneficial from its quality than its quantity. What was the idea to be gathered from their symptoms, and particularly the pulse ? The pulse had all the marks of an asthenic one ; being weak, small, and quick, like that of a new-born infant. What was the state of their habit ? Was it vigorous and robust ? It was the reverse ; soft, delicate ; the habit lax ; a falling off in flesh, with weakness over the whole system, and total loss of appetite. What were the remedies employed to remove this supposed offspring of plethora ? Bleedings, repeated without end ; other evacuations with the same freedom, and vegetable food in a fluid form, and a horizontal posture, with their head lower than their body and under-extremities. Miserable are the resources of ignorance, and contemptible their execution ! Fill a rigid tube full of water, open at both ends, and the fluid, no doubt, will run out at the end which is most below an exact horizontal position. But that is not the case with the fluids in living vessels. The excitement, distinguishing them from all rigid inanimate tubes, counteracts the effect of gravity, while its living state remains : In proportion to the degree of which, the sides of the vessel will embrace their column of fluids, and prevent the flowing out of the fluids, in proportion to the degree of excitement ; and before the gravity can act, the excitement must be extinguished,

discharges ; which proceed *in their course*, not with *any* effort (*r*), but a diminution of tone : They are all asthenic, and the asthenic diathesis, as far as it depends upon them, consists in direct debility.

ω. But, as every other exciting hurtful power may be converted into indirect debility, so, also, may an over-proportion of blood. For the vessels, ultimately distended, and beyond all bounds, may (*s*), by the excess of *that* stimulus, exhaust their own excitability, and, thereby, put an end to their excitement. Upon which the forcible contractions are converted into languid ones, or *such as could scarce be called* contractions at all ; the diameters formerly effaced, are con-

and the living system reduced to a lumpish mass of dead matter. It is the latter, that enables them to produce that effect. And, therefore, bleeding discharges can never happen, either in health or asthenic diathesis, unless in that very high degree of it that approaches to indirect debility, and even then, only in the forced, scanty, manner described in the text ; whereas, after the establishment of indirect debility, or in the case of direct, the great discharges *only* can happen, and that without force, in great plenty, but still short of what would happen if no excitement restrained it.

(*r*) or active impulse,

(*s*) under the high asthenic diathesis,

verted into an extremely patulous state. The finer parts of the fluids flow through the patulous extremities of the arteries, wherever they find an out-let, and carry with them, sometimes serum, sometimes red blood (*t*).

In the asthenic diathesis, *as well as the asthenic*, it is not the quality of the blood, but its quantity, which is to be found fault with, *and the fault in quantity here* is deficiency. The deficient quantity produces the symptoms of the pulse, that have been mentioned above, by not sufficiently distending the vessels, and giving them sufficient excitement. Plethora, which has been thought to belong to this form of diseases only, has absolutely no existence in it. The state of the vessels, with respect to the quantity of blood in them, that is pleasant and suitable to health, is the mean betwixt the extremes that have been spoken of.

CXXXV. This state (*u*) is the chief origin of asthenic diseases, of which the so very hurtful

(*t*) All from “penuria sit, imminuiter” in the original, is an addition in MS.

(*u*) of the blood and vessels, that we have been describing, that is, penury of blood, and atony and laxity of the

hurtful effects of evacuation, especially bleeding, as well as vomiting, purging the belly, and every other *mode of diminishing the bulk and quantity of fluids*, give full proof. This proof *has of late* received a further confirmation, in the singular success of the cure by other stimulants first, and then by every mode of filling the system (x).

CXXXVI. The different fluids secreted from the blood in different ways, are, by the distention which they give to their respective vessels, also understood to stimulate. In that respect the milk and seed, by the abundance of each in its respective vessels, and likewise the perspirable fluid, have the chief effect.

the vessels, chiefly from direct, sometimes from indirect debility; though the latter case is exceedingly rare,

(x) Systematics allow that there are many diseases, which are a reproach to their art; from their never yielding to their method of cure, but, on the contrary, becoming worse and worse in proportion to the time and pains taken about it. Of these opprobria medicinæ (it would be better, I believe, to call them opprobria medicorum) few are more so than the bleeding diseases; which seem uniformly to have proceeded from evil to worse under the evacuant debilitating plan; while it has now been found, that the high stimulant plan removes them with the greatest success.

The commotion of the secretory organ (*y*), by means of the excitability, which is one and the same undivided property over all, is easily diffused over the whole body, and, when it rises to excess, is capable, with other powers that communicate an excess of excitement, to produce asthenic diathesis.

CXXXVII. The same *secreted* fluids, when they do not sufficiently distend their respective vessels, when they do not communicate enough of excitement, make no inconsiderable part of the hurtful powers, that constitute asthenic diathesis.

A. For which reason vomiting, purging, and every other evacuation, are powerful inducers of asthenic diathesis, which they effect in proportion to the debility that attends their operation. The same thing is to be said of excess in venery, which is partly

(*y*) It has been said above, in chap. IV. that the excitability is one uniform undivided property over the whole living system; and that, wherever it is acted upon in any part of its seat, it is affected over all. This fact, which is strictly true and universal over every part of living matter in nature, with the utmost ease explains many things, that were confessedly inexplicable upon every other medical doctrine; and, among the rest, the several affections of the secretory system.

an indirect, partly a direct, always a great, debilitating power (a).

B. Sometimes the secretory vessels seem so crammed with a colluvies of fluids, that indirect debility may possibly arise from that source; as is exemplified in that overflowing of bile, which distinguishes the yellow fever (b). Here too the debilitating effect,

(a) Nothing is more effectual in hastening of death than a love marriage betwixt an old man of worn out excitability, and a young beautiful virgin: I need not explain to any reader on which side, that of the man or the wife, either the love or the danger lies.

(b) of the Torrid Zone. I have been so often, and by persons of good enough sense to make just observations informed of the necessity of purging off the redundancy of that fluid, which not only fills the intestines, but diffuses itself over the whole alimentary canal; and, then, of following out the cure of the disease by the use of wine, spirits, and the diffusible stimuli, that I have, though at first with some reluctance, admitted the fact. The reason of the slowness of my assent to it was, that, upon every other occasion of any accumulation of matter in the first passages, even in the colic itself, I had always found the practice of invigorating the peristaltic motion, by stimulants, sufficient to clear away all such extraneous matter; while vomiting and purging, by their relaxing effect upon the vessels, served to generate more, and encrease the cause of the disease, which is always debility. This I found not an exception to that general principle, but an instance of

a sort

of

an

exception

to

the

rule

of

the

law

fect, by means of the excitability, tends to diffuse the diathesis over all (c).

From this source arise, a languid action of the extreme vessels (d), a slow, then no, motion of the fluids, a stagnation and corruption of them. A diminution, or temporary destruction of excitement, over this large a sort of local disease, from an over-repletion of the exhalant mucous and biliary vessels.

(c) All from "par sunt" to this reference, is an addition to the original text.

(d) These are the exhalants that pour out the saline, watery part of the blood unchanged ; the mucous glands that change, by their secretory operation, the fluid they receive from the blood ; the pori biliarii that change the fluid that they receive from the extremities of the veins of the gate, and of the hepatic artery, or artery of the liver ; the little ducts which these form by the union of numbers into single vessels ; the hepatic duct or great biliary vessel of the liver, which receives the bile from all the ducts ; and, lastly, the ductus communis cholidochus, or the duct that may be denominated in English, the general receiver of all the bile, whether from the great duct of the liver, or that which sends to the gall-bladder a part of the bile that returns in the same vessel to the general receiver. These, and besides them, the inhalants or absorbents as they are called, to wit, the small vessels that take up from the exhalants and other arterial terminations of vessels, the fluid, called lymph, which is once more to be returned into the circulation ; are the vessels that suffer the concourse of symptoms described in the text.

space in the system (*e*), by means of the same excitability, communicates debility to the rest of the body ; and, in conjunction with other hurtful powers that give not enough of excitement, produces asthenic diathesis.

Γ. The various sorts of gestation (*f*), and of exercise and labour, by rousing the muscles into contraction, and thereby accelerating the motion of the blood in the veins towards the heart, while the valves prevent its taking a contrary direction, greatly promote excitement in all the vessels, and, therefore, over the whole system ; and *the effect* may go so far as to produce asthenic diathesis.

Δ. As nothing contributes more to health than moderate, and frequently repeated exercise, and its excess acts in the manner that has *just now* been described ; *at the same time* a degree of it, *either* greater or less, than the salutary degree, by its weakening effect, the

(*e*) How great the space in the whole system is that these vessels occupy, may be easily imagined, when it is considered, that every evanescent artery, over the whole body, terminates in one or more of these colourless vessels that have been described.

(*f*) as riding on horseback, going in a carriage, using an hobby, sailing.

former

former in wasting the excitability, the latter in with-holding a necessary stimulus; that is, the one by debilitating indirectly, the other directly, produces asthenic diathesis (g).

CXXXVIII. Thinking, which acts more upon the brain, to which it is immediately applied, than upon any other equal part of the system (b), encreases excitement over the whole body (i). Straining in thinking, whe-
ther

(g) All from the end of the CXXXVIIth paragraph is an addition to the Latin text. Such omissions were the consequence of the hurry with which the demand for the second edition, from his pupils, obliged the author to proceed in finishing that work. It was, therefore, proper to supply all such material defects, and thereby prepare the work for a third edition; which will soon be offered to the public.

(b) Vide Chap. IV. Part I.

(i) None of the exciting powers have more influence upon our activity than the two which are just going to be mentioned, the exercise of our intellectual function, and that of passion or emotion. With respect to the former, Homer observes of the hero, whom he gives for a pattern of eloquence, that upon his first address, that is while he was under some agitation, and had not yet got into his train of thought, he was awkward in every motion, and in his whole attitude; he looked down to the ground, his hands hung strait along his sides as if powerless; his whole appearance was torpid. But when he once entered upon

ther in a high degree for once, or often repeated in a lesser degree, or habitual, may alone prove hurtful; *but*, in conjunction with other powers also hurtful from their excess of stimulus, may become more so, and amount to a degree equivalent to the production of asthenic diathesis.

CXXXIX. An evident cause of asthenic diathesis is that state of the intellectual function, in which excess in thinking, by wasting the excitability, ends in indirect debility; or that deficient, weak, vacant state of mind, uncapable of keeping up a train, which pro-

upon his subject, his eyes were all fire, his limbs all motion, with force, grace, and energy. Upon commencing a lecture, the pupils have often observed the same torpor in the lecturer, and a similar vivacity and life in a few minutes, when he had now got fairly into his subject: the report which a lecturer's daughter, upon looking through the hole of a door, while the lecture was going on, made to the family and some company then present, was, that her father looked, in his lecture, as if he would look through his hearers. A Mr. Donaldson is one of the few great masters, in the art of painting, who never fail, with a most exact likeness, to display the whole influence of the mind upon the features. A miniature of me, done by him, as a present, is reckoned the greatest master-piece in these respects, that ever came from the hands of a painter.

duces the same hurtful effect by direct debility. This faulty state of the mind contributes greatly to weaken *the system* (k).

CXL. Violent passions of mind, as great anger, keen grief, unbridled joy, going to such a pitch as to destroy excitability, have the same effect as excessive thinking, and admit of all the same reasoning.

CXLI. A force of passion rising to the height of exhausting the excitability, induces that asthenic diathesis, which is occasioned by indirect debility, and diseases of that stamp. Hence epilepsy (l), hence apoplexy, and that, when the mind has been screwed up to the height of passion, often fatal.

CXLII. On the contrary, when there is a deficiency of passion, as in melancholy, grief, fear, terror, despair, which are only lower degrees of joy, assurance, and hope, and imply no more than a diminution of exciting passions, not emotions *of a nature*

(k) It may often be remarked by physicians, that their patients, after every other proper part of cure has been executed, are never completely restored to their healthy state, till they are again engaged in their usual occupations both of mind and body.

(l) or the falling sickness,

opposite

opposite to those, and positive; their tendency is to produce the asthenic diathesis, which depends upon direct debility. The immediate production of this is loss of appetite, loathing of food, sickness at stomach, vomiting, pain of the stomach (*m*), loose belly without pain, the same with pain, indigestion (*n*), cholic, the gout, and fevers.

CXLIII. The *exercise* of the senses, when it is agreeable, has a very great effect in exciting the whole body, and in producing emotions, which, together with the hurtful powers mentioned above, may easily contribute to the production of sthenic diathesis. Those emotions are exemplified in drinking, dancing, in agreeable entertainments, where the eye is dazzled with the splendour of the dishes, of the company, and of all the objects around.

CXLIV. The energy of the same *exercise of the senses*, when it is excessive, and carries the effects, just now mentioned, too far, produces indirect debility. On the contrary, when the senses are either in part destroyed,

(*m*) called cardialgia by systematics

(*n*) called dyspepsia,

or in part dulled, or disagreeably affected (*o*), the mind is dejected, and the whole body thrown into *a state* of languor and direct debility. And, in both cases, especially when there is a concurrence of other debilitating hurtful powers, the asthenic diathesis arises.

CXLV. The effect of the air (*p*), independent of its qualities, as they are called, or its properties, and its use in supporting respiration, is less obvious to observation (*q*) ; at the same time it cannot be doubted, that its application to the whole surface of the body is a stimulus not to be dispensed with. The air is seldom applied in a pure state: it is commonly blended with foreign matters that diminish its force of stimulus ; and, while its salutary stimulus depends upon its purity, at the same time it is uncertain whether ever

(*o*) Nothing is more clearly disagreeable than an obscure light, as when one reads with a small or unsnuffed candle. Hence the luxury of more candles than one, or of wax or spermaceti candles. This is often experienced at Ranelagh, and may be seen in children exquisitely amused.

(*p*) upon the human body,

(*q*) than the other powers that have been spoken of,

its

its purity goes so far as to stimulate in excess, and thereby produce sthenic diathesis. The balloons, lately invented, by which men get above the clouds, would serve excellently to throw light upon that matter, if it were not for the cold *that* accompanies this progress. Be that as it may; since we never live in the purest air, and yet live commodiously enough, it is, therefore, credible, that too pure an air has a tendency to stimulate in excess, and, therefore, produce sthenic diathesis.

CXLVI. But, as nothing is more usual than impurity of air, and every impurity diminishes its stimulus, a very impure air, or air blended with impure matters, without doubt debilitates, and produces asthenic diathesis. Accordingly, impure air is a frequent cause of typhus, as is evident from the fate of those who died in the black hole of Calcutta. Whether ever the air, from an excess of purity, produces asthenic diathesis, is the more doubtful, that, as has been said, it is as yet undecided whether it produces sthenic diathesis or not.

E. Contagious matter, in so far as it may have any tendency to produce general diseases,

eaſes, in one form produces ſthenic, in another asthenic diseases, and, therefore, acts like the ordinary hurtful powers of either fort, and admits of all the same reasoning. But, in ſo far as it only occasions the eruption, without making any change in the excitement, it is to be referred to the local diseases, the evil qualities in them.

z. To poisons, if they act as general stimulants, all the reasoning that has been employed with respect to the other hurtful powers, will apply. It is not, however, likely that they are general stimulants.

CXLVII. It is seldom from the separate, almost always from the united operation of all the powers, that both the diatheses, whether as remaining *within the range of* predisposition, or rising to the degree of actual morbid state, are produced, and from no inherent power in the system.

C H A P. II.

The Cause of each Diathesis.

CXLVIII. The cause of asthenic diathesis, produced in the way that has now been explained, is, in consequence of the operation of the powers that have been mentioned, too great an excitement of the living system every where, *with the effect of* first encreasing all the functions, then of producing a disturbance in some, and impairing others, but never by a debilitating operation.

CXLIX. The cause of the asthenic diathesis arising from the same source, is, in consequence of the debilitating hurtful powers, too little excitement of the living system every where, *with the effect of* impairing all the functions, disturbing some, giving a false appearance of encreasing others, but always debilitating (a).

(a) It must now appear to the reader, to what simplicity the hitherto conjectural, incoherent, erroneous, mysterious, and enigmatical art of physic, is now reduced. It has been demonstrated, that there are only two forms

of diseases, that the deviation from the state of health, in which the morbid state consists, is not either repletion or inanition, or changes in the qualities of the fluids, whether of an acid or alkaline nature, or the introduction of foreign matters into the system, or a change of figure of the extreme particles, or a disproportion in the distribution of the blood, or an encrease or decrease of the power of the heart and vessels as regulating the circulation, or a rational principle governing the actions of the body, or an alteration in the extreme particles as being of too large or too small a size, or an alteration of the pores, as being too narrow or too capacious, or a constriction of the superficial vessels from cold, or a spasm of them producing a reaction, as it is called, of the heart and interior vessels, or any thing that any person has yet thought of respecting the cause and nature of morbid state. On the contrary, it has been proved that health and disease are the same state depending on the same cause, that is, excitement, varying only in degree; and that the powers producing both are the same, sometimes acting with a proper degree of force, at other times either with too much or too little; that the whole and sole province of a physician, is not to look for morbid states and remedies which have no existence; but to consider the deviation of excitement from the healthy standard, in order to remove it by the proper means. The reasoning part of this doctrine, it is expected, the reader will find irreprehensible and unanswerable; and the practical part, from the astonishing cures that have upon innumerable occasions been effected, will ever stand in support of the truth and utility, as well as simplicity of the whole.

The Patient, before he falls into a disease of a
direct Liability ^{must} pass through all the range
the most vigorous excitement, from whence
the senses will appear acute from

Q F MEDICINE.

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30. 11. 1812. 10. 12. 1812. 10. 12. 1812.

C H A P. III.

The Sthenic Diathesis.

CLI. PREVIOUS to the disturbance (a), which never happens till after the arrival of the disease (b), and even then only in a violent attack of it, all the senses are acute, the motions both voluntary and involuntary (c), are vigorous, there is an acuteness of genius, and

(a) of the functions, which, it has just now been said, the hurtful effects of both sets of powers produce,

(b) During the predisposition to peripneumony, as well as to every other disease, neither the symptoms of disturbance, or any other symptoms at all appear. And in mild cases, such as catarrh, the symptoms of disturbance occur not through the whole course of the disease: But, when a disease is, like the peripneumony or the gout, of a violent nature, then the system is commonly disturbed, and in a most conspicuous degree. The affection of the lungs in the former, from the inflammation within, and of one of the feet, or some other part in the latter, from an external inflammation, give extreme disturbance to the affected parts, while there is a disease of the same nature as the gout, that is dyspepsia, or indigestion, in which the inflammation never appears.

(c) The voluntary motions are those that are performed under the influence of the will, such as the motion of

and a great force of sensibility as well as of passion and emotion. *The several parts of the body are perceived to be in a state of vigour from the following marks of it*; the heart and arteries from the pulse; the extreme vessels on the surface of the body from the complexion; all the muscles from the strength that they exert; the internal secretions from the great quantity of milk and semen; the digestive organs from the appetite, the digestion, the vigour of the body, and the manifest abundance of blood.

CLII. How far the intellectual faculty, and the force of passion, are increased, will be learned from a comparison of them in this diathesis, in good health, in the second form of diseases and predisposition to it. In this way it is that the functions are first increased.

the limbs in walking, or in any sort of exercise. The organs, by which they are moved, consist of bundles of moving fibres called muscles. The involuntary motions are those of the interior parts of the system, such as those of the heart and vessels connected with it; the peristaltic motion in the first passages, which are the passage to the stomach, the stomach itself, and the whole convolutions of the intestines; as also those of the womb, of the bladder, of urine, and so forth. None of the latter are under the influence of the will.

C H A P. IV.

The Sthenic Diathesis illustrated by an explanation of its Symptoms.

CLIII. The encrease of *the force* of the senses, of the motions, of the intellectual faculty, and of the passions, depends upon the encrease of excitement in every one of their organs, among other actions, quickening the motion of the blood *through them*.

CLIV. The coming on of every sthenic disease is announced by a shivering. It depends upon a diminished perspiration, by means of the diathesis being *exquisitely* strong in the extreme vessels of the skin. The same is the explanation to be given of the sense of cold, which commonly accompanies the shivering; and the same is the explanation of the dryness of the skin.

CLV. In the same diseases the pulse is stronger, harder, and fuller, and somewhat more frequent, than *in its sound state*. Its fulness and hardness is owing to the taking animal food plentifully during the predis-

position. The force and frequency is occasioned by the same and any other stimulus, as that of strong drink; that of the diffusible kind, and that of exercise, whether corporeal or mental: Nay all the stimulant hurtful powers are participant of the same effect.

CLVI. If, in the progress of the disease, the pulse sometimes becomes weaker, softer, emptier, and quicker, that is a bad sign, and occasioned either by the debilitating plan of cure being pushed beyond the proper bounds; or, in consequence of a neglect of that sort of cure, it may be owing to some debility induced by the excess of excitement. The former of these is direct, the latter indirect debility; both to be avoided.

CLVII. The complexion in the vessels, which is often a consequence of a previous appearance of paleness, and great quantity of secreted fluids, is occasioned by an over-proportion of blood, in consequence of an excessive sthenic diathesis obstructing the perspiration. The same is the cause of the head-ach and pains in different parts. For, as the head-ach so quickly and easily yields to bleeding, it is, therefore, seldom to be suspected of being owing to inflammation within

within the head. And the reason for so thinking is strengthened by this further circumstance, that the inflammation arising in general diseases always affects an external part, as far as that fact has been enquired into (a).

CLVIII. The delirium also, that sometimes arises in a violent state of disease, is not to be imputed to inflammation, and for the same reason; for it yields so much to bleeding and other evacuations, that there is no reason for suspecting inflammation within the head. That abundance of blood in the vessels, distending these to excess, is the cause of the whole affair, is proved on the one hand by the redness of the face, implying such abundance, and on the other by bleeding, removing the disease at once.

CLIX. Thirst and heat, which are also remarkable symptoms in sthenic diseases, depend upon the sthenic diathesis in the extreme vessels of the fauces and skin; the diathesis so obstructing the vessels as not to allow a return of perspiration, but to suffer, however, the blood to pass into the very neighbourhood of the ends of the vessels,

(a) Vide above, CXIII.

and, by means of the suppression of the perspiration, to accumulate, under the cuticle, the heat generated in the system. Thus, in the throat, from an affection of the ends of the vessels, the saliva and other fluids, by the free flow of which the throat is lubricated, and freed from that sense of dryness, which is called thirst, are now confined (*b*), and thereby produce thirst.

CLX. Hoarseness, cough, and expectoration, which are sometimes observed in sthenic diseases, commonly proceed, and succeed to each other in the following order. There is first often a hoarseness, then a dry cough, then a cough with expectoration. The cause of the hoarseness and dry cough is an obstruction of the exhalants and mucous vessels, which terminate in the bronchia, still occasioned by a violent sthenic diathesis, and prevented from transmitting their contents to lubricate the air-vessels (*c*), so as that hoarseness

(*b*) and prevented to flow out,

(*c*) The bronchia are the divisions of the wind-pipe running through the substance of the lungs, and blended with the blood-vessels. In the substance of the lungs, besides these two sets of vessels, the air-vessels and blood-vessels, there are likewise exhalants, small arteries, and mucous

hoarseness may be removed, and the expectoration proceed with freedom. Again, the expectoration is *next*, freely made, because the diathesis, being now diminished, and allowing the ends of the vessels to be relaxed, and the fluids to be poured out in abundance upon the air-vessels, is the occasion of the fluids producing a commotion of the excitability over this whole organ, and by the convulsive motion, which is called cough, of being themselves thrown out.

CLXI. As the greater freedom of expectoration now implies an abatement of the diathesis; so too great a flow, and too long a continuance of it, shows, that the diathesis is now rushing into the asthenic state, either from indirect debility, as when the disease, in its progress, has much exhausted the excitability; or from direct debility, as when the plan of cure, proper *in kind*, has been pushed beyond the bounds.

mucous glands, coming off from the extremities of the red arteries. The wind-pipe is covered with the latter; and the great quantity of mucus thrown up from the lungs, often in perfect health, and in innumerable cases, both of sthenic and asthenic general disease, sufficiently proves the existence of the source from which they flow.

CLXII.

CLXII. Those same symptoms (*d*), while they stop short of the range of direct debility, or are not yet changed into the indirect, are occasioned by heat, and whatever stimulates in excess, and removed by cold and whatever acts as a weakening power.

CLXIII. Paleness, shriveling of the skin, clearness of the urine, and bound belly, which chiefly happen about the beginning of the disease, arise from a degree of the diathesis, shutting up the ends of the vessels in such a manner, that either nothing is excreted, or the thinner part, as in the urine, only escapes. The cure of the affection of the urine, of the obstructed perspiration and costiveness, shows that the diathesis is now gradually abating, the disease becoming mild, and now upon the eve of being thoroughly removed by emetics, purgatives, and sudorifics, and the use of other debilitating remedies.

CLXIV. In sthenic diseases, when they are gentle, the appetite is often not much diminished, and oftener more food can be taken than is serviceable. But, unless the

(*d*) mentioned just now,

lightest

lightest vegetable matter only, and that in the form of watery potion, or in a fluid form, be given, every morsel of it will do harm.

CLXV. But, when either from indulgence in food of a rich nature, or from employing a stimulant plan of cure, or from the disease having, from the beginning, arisen from very violent, hurtful powers, and now attained its highest degree of violence; in any, or all these circumstances, both the other bad symptoms, mentioned above, break out directly, and the violent disorders of the stomach, or an acute pain of the thorax, show themselves indirectly.

CLXVI. In a violent diathesis, therefore, where there is little appetite for food, but a very great desire for drink with the latter; the patient is by all means to be gratified; but the former should be avoided, as producing loathing, sickness at stomach, and vomiting. Those symptoms are not usually of long duration, unless when the diathesis is now going, or actually gone, into the asthenic state by the means that have been mentioned above (*f*), and, by removing the

(*f*) Vide last paragraph and a few immediately preceding it.

other symptoms by the proper debilitating plan of cure, they go off; but when the stomach sickness and vomiting are urgent, and begin now to be a little more obstinate, and of a little more duration, one may know that they still remain short of the change into indirect debility, *by the following marks*: if the pulse still maintains moderation in its frequency, and does not much abate of its fulness and force; if artificial vomiting and purging diminish the morbid vomiting, and, in one word, if the debilitating plan of cure still succeeds. But, it will then at last be understood that the disease is altogether changed, and its cause converted into the opposite, when those symptoms every day increase; when the pulse becomes weaker and weaker; when gripes in the intestines, and liquid stools, are superadded to the symptoms that disturb the stomach, and when the antisthenic or debilitating plan of cure is now of evident detriment (g).

CLXVII. While the same symptoms (b) still stop short of indirect debility, the exces-

(g) See above, CIX.

(b) of the stomach and intestines,

five excitement in the stomach being of quicker tendency to indirect debility there than any where else, upon account of the stomach's great sensibility, and the force of the more powerful stimuli being chiefly exerted upon it, produces symptoms of disturbance (*i*) ; for the most powerful stimuli, and those that are signally powerful in producing sthenic diathesis (*k*) are first applied there, and exert a greater force upon the excitability in that than *any other part*. Those stimuli are the several preparations of animal

(*i*). See above, LIV.

(*k*) as high seasoned animal food, wine, spirituous drink, cordials, and the whole train of high diffusible stimuli, some of these, as meat and wine, have no effect upon the external surface, or any other part: others, as some of the condiments, such as mustard and strong spirits, and above all the diffusible stimulants, as æther, camphor, and opium in a liquid form, do act upon the second, and by their application to it support their own internal use. Thus, to prevent or remove the gout, anasarca, sprains, and so forth, the application of any of those high diffusible remedies, just now mentioned, will greatly contribute, along with their use as taken into the stomach, to support the general operation. These, and innumerable others, are so many facts that have been suggested by observations and trials made in the prosecution of this doctrine.

Vibrating bristles, and rattles, food,
blood

food, the several concentrated strong drinks, the several condiments with which they are seasoned, the various diffusible stimuli, as the different preparations of opium, volatile alkali, camphor, musk, and æther; and they all act upon the stomach with that force which they exert not upon any other part; they do not upon the intestines *below*, because they undergo a change from the first digestion before they pass over into the first portion of the intestinal canal; not upon the lacteal vessels, because they are not received into them till they are further diluted, and undergo another change from the digestive operation, and when so changed, they are next carried to be mixed with the blood; not upon the heart and arteries, upon account of the same dilution *meeting them also in those vessels*, and of a constant change of mixture occurring through the whole course of the circulation; not upon the terminations of the arteries, *whether exhalant or glandular, and whether* these excrete from the body a matter already corrupted, or carry back by the lymphatic vessels, an useful matter to the blood; and that both for the reasons that have been given, and particularly because

because some great change is made in the exhalants and glands; not upon the lymphatic vessels, where a new fluid is constantly flowing in upon the old in these parts by means of anastomosing branches, and chiefly in the thoracic duct; not upon the other blood-vessels, upon account of the great change that a repetition of the circulation produces; not upon the muscular fibres, whether voluntary or involuntary, because the stimuli by no means come in contact with these; not upon the brain or medullary substance for the same reason (1), as well as for the great distance of these parts from the part that received the first contact of the stimuli. In one word, as all the exciting powers, whether salutary or hurtful, or curative, act somewhat more powerfully upon certain parts than upon others, as these parts are generally those which they first affect, and with which they come into direct contact; those, therefore, in preference to others, are most liable to pass either from sthenic diathesis into asthenic, or from the latter to

(1) to wit, that they do not come into contact with them,

the former: *which, however, happens* in such a manner, that, because the excitability is one *uniform*, undivided property over the whole body; whether the excitement has been increased in a peculiar part, or diminished; and, whether its diminution has been owing to direct or indirect debility, and *in either way* the asthenic diathesis produced; all the rest of the body soon follows the kind of change *that has taken place*; and, since the powers that have acted, have been, and are the same, that is, either excessively (*m*) or insufficiently stimulant (*n*), or so to an ultimate excess; and as the excitability upon which they have acted, and still act, is the same, that is, the whole consideration of the cause is the same, the effect must also be the same, that is, the same sort of actions, whether in excess or defect (*o*), must be established over the whole body.

— (*m*) in so far as they produced asthenic diathesis,

— (*n*) that is, debilitating, in so far as they produce the asthenic diathesis, that depends on direct debility, or in so far as they produce the asthenic diathesis that depends upon indirect debility,

— (*o*) whether asthenic or asthenic,

CLXVIII. The inflammation, which accompanies the phlegmaſiae (*p*), occupies an external part, as far as its nature has been yet ascertained. And the reason of that is, that heat, which is the most powerful hurtful agent in those diseases, either alone, or alternating with cold, or succeeding to it, has much more power externally, where it is directly applied, than internally, where the temperature is nearly stationary, in stimulating, and, therefore, raising the general diatheſis, to the degree of actual inflammation in a part. Hence the throat, hence the different joints, hence the face, where the form of inflammation is different (*q*), hence the lungs, which are to be considered as an external part, because the air has direct access to them, *all these* are affected with inflammation in preference to other parts. And, besides the energy of the exciting hurtful power, just now mentioned, there is in the

(*p*) diseases that are ſthenic and accompanied with an inflammation of a part, as a portion of the lungs, the throat, ſome of the joints, and in which, as has been formerly ſaid, the inflammation is like any other ſymptom, an effect of the cause of the disease, not itſelf the cause,

(*q*) as when the inflammation of eryſipelas appears there;

part, that is to undergo the inflammation, a greater sensibility (*r*) than in others, or a more accumulated excitability ; by means of which it happens, that of the parts that have been mentioned, *sometimes* one, *sometimes* another is affected, more than the rest (*f*). To this *consideration of the cause*, it

(*r*) See above, LIII. a.

(*f*) In the inflammatory sore-throat the inflammation affects the throat, which is also sometimes the seat of an erysipelatous inflammation. In erysipelas, sometimes the face, sometimes one of the legs, sometimes the ear, sometimes the temples, are inflamed. I have frequently been affected with an erysipelas, that begins with an acute inflammation and pain in one ear, which is thickened to four times its usual dimension ; from that it spreads over the whole hairy-scalp till it reaches the neighbourhood of the ear in the opposite side, never, however, affecting that ear : this progress has been sometimes from the right to the left, sometimes from the latter to the former, in proportion as either had been more exposed than the other to heat, or the alternation of heat with cold, or their succession to each other. This disease is sthenic, but in a mild degree, and to be removed by coolness, cold water, low vegetable fluid diet, and a slight purge. It was once greatly aggravated by wine, spirituous drink, and the high diffusible stimuli. In rheumatism, the inflammation attacks a large joint, sometimes shifting from one to another, sometimes several at a time, and, in contradistinction to the erysipelatous, is deep seated, extending to the interior part of the true skin, which is the case with every

it is to be added, that which ever of the parts we have mentioned has been injured, in whatever manner it may have undergone the inflammation peculiar to the phlegmasiæ, that part, in every after attack of a new phlegmasia, is in more danger of being inflamed than the rest. This is the true cause of the recurrence of some of the phlegmasiæ, as the inflammatory sore throat, and rheumatism (*t*). Peripneumony is a disease
les

every such inflammation, called, therefore, phlegmonic; while its seat in erysipelatus is betwixt the scarf-skin and outer part of the true skin upon the corpus mucosum. To these phlegmasiæ, accompanied with an inflammation of a part, depending upon the general cause of the disease, and especially upon the effect of temperature, may be added that which an inflammation in one of the ears accompanies, though this case is seldom admitted into the number of the phlegmasiæ. It is, indeed, sometimes local, arising from local injuries, but is as certainly at others, a general disease, and to all intents and purposes a phlegmasia.

(*t*) Those two diseases, in young vigorous persons, are very liable to be exceedingly troublesome by the frequency of their occurrence. In the younger part of my life the violence in degree, and frequency of recurrence, of the sthenic inflammatory sore throat, was very distressing, as the least variation of the external temperature, superadded to a full nourishing diet, not without the stimulus of a

less frequent than any of the rest of this form, because “the seat of its inflammation” (*u*) is exempted from many stimuli, liable to produce sthenic diathesis with its accompanying inflammation (*x*).

H. As

cheerful glass, was ready to renew, not only the inflammation, but the whole phænomena of the disease. The same thing I have often observed in the frequent recurrence of rheumatism in persons of the same age and habit, perhaps, with some difference of temperament. But it is to be observed, that, in proportion to the advance of life, and diminution of vigour, both these diseases become much less frequent, and much less violent. Nor is any thing more common than their giving way at this time to a very opposite disease, the gout, which depends upon a superaddition of direct debility to the indirect, that laid the foundation of it. I am pretty certain my inflammatory sore throat, or erysipelas, never happened spontaneously, nor without an addition of stimulant power, to those that produce that disease, in consequence of carrying to some excess the plan of cure suited to the removal or prevention of the gout.

(*u*) This is an addition in MS. to the Latin text.

(*x*) All to the end of this paragraph is erased as obscure and incorrect; and, in place of it, the following portion of a paragraph is inserted. “*Cum synocha, catarrhus, variola lenis, inflammationis, (nisi quantum in variola localis, a locali causa, ab ea dequa agitur, diversa, subboritur), expertes sint & eadem in peripneumonia, erysipelate gravi, & similibus vehementibus aliis, summa;*

H. As the inflammatory fever, catarrh, the gentle small-pox, are unattended by inflammation (unless that in the last a local inflammation from a local cause, quite different from that which makes our present subject, takes place), and as the inflammation in peripneumony, violent erysipelas, and similar other cases of great violence, is found the highest in degree; for that reason the conclusion is, that the degree of inflammation, which is a symptom of general sthenic diseases, is proportioned to the degree of the sthenic diathesis (*y*).

CLXIX. The inflammation, in this case, is nothing else, but a state of the inflamed part of a common nature with *that in* the rest of the body. And as the inflammation is produced by a greater degree of excitement in the inflamed, than in any other equal

“ in cynanche tonsillari plerumque perquam mitis, repe-
“ riatur; ob eam causam inflammationis, quæ commu-
“ nium morborum sthenicorum symptoma est, magnitudo
“ magnitudini diatheseos sthenicæ respondere, dicenda
“ est.”

(*y*) It shall by and by be shewed, that this sort of inflammation is only a part of the general diathesis, somewhat higher in degree than any other part, but far short of the degree constituted by the whole general affection.

part; so, before the disease comes on, of which the inflammation is only a part or symptom, the excitement of that part is understood to be proportionally greater than in any other part (z).

CLXX. This inflammation, which for the sake of distinction is to be called general sthenic inflammation, should be distinguished from another, which is a local affection, arising from local hurtful powers, and depending upon a fault in the organ, or a solution of continuity (a).

CLXXI.

(z) See above, par. L. and LI. Suppose the excitement in every part of the system to be 45 at some point in the period of the predisposition, and 54 in the part to be inflamed; after the coming on of the disease the same proportion will hold; when the excitement has now mounted up to 60, the excitement of a part will be understood to have gone to 69; keeping up still the same proportion. But this 9 degrees of greater excitement in a part, comes far short of the sum total of excitement in all the parts affected with the general sthenic diathesis; that you may suppose 3000: and then the conclusion will be, that the general sthenic diathesis consists in a sum total of morbid affection, as 3000; while the inflammation of the part is only an affection of 3 degrees of excitement.

(a) Solution of continuity in all its forms, whether as being the effect of puncturing, cutting, bruising, compression, erosion from acrid matter, or from heat, or cold, is

CLXXI. To this the term of sthenic local inflammation applies. The general always depends upon sthenic diathesis, is a symptom or part of it, never precedes it, always succeeds to it sooner or later, arises from the same hurtful powers (*b*), and is reduced by the same remedies. In contradistinction to which, the local affection, as it arises from local injury, producing a solution of continuity, or deranging the texture of the part; so, if the labouring part is not very sensible, the affection extends no further. In the case of a part being endued with a high degree of sensibility, suppose the stomach, the intestines, among the internal parts; among the external, the tender substance under the nails; *in these cases*, the effect of the inflammation is propagated over the whole system, and, in consequence of an affection of all the vessels, excites a tumult every where. The same local sthenic inflammation, whether it be fixed in the part, or from its propagation, gives more

is always followed by an inflammation, which, when it goes on briskly, and needs to have its violence restrained, should be called as is expressed in the next paragraph.

(*b*) which produce the other symptoms,

general

general disturbance, yields to no remedies, but those that act upon the affected part first, and heal the solution of continuity (*c*). Let it suffice to have said so much at present upon these inflammations, for the sake of establishing necessary distinctions, as more is afterwards to be said upon the local, in its proper place. There are as many inflammations still remaining, universal and local, to be more fully explained in that part of our work where the proper order requires it.

CLXXII. Inflammation, also, as often as it affects a vital part, produces symptoms of disturbance. Whether ever the general sthenic inflammation affects the brain and its membranes, is hitherto not ascertained (*d*). And it is more probable, that the commotion of the head, and other disturbing symptoms of phrenitis, do not depend upon inflammation, as the following phenomena seem to show: *The first of those is*, the ease by

(*c*) or reparation of united substance,

(*d*) Phrenitis has been thought, and commonly even defined, an inflammation of the brain; an opinion that, however universal, seems to be liable to much doubt: nay, there are many reasons for adopting an opposite one, as will appear from the reasoning in this paragraph of the text.

which

which the cure is affected, the whole tumult of *symptoms* readily yielding to bleeding, purging, and other asthenic (*e*) remedies ; and, it not being very credible, that the effect of actual inflammation in a part so delicate, and so necessary to life, could be so easily effaced. Then another argument against the same opinion is, that there is no certain proof, after recovery, of the existence of inflammation *during the disease*. Next, analogy makes for the same conclusion which we are disposed to draw ; for, as it has been said above, general inflammation does not arise internally in any general sthenic diseases (*f*) ; on the contrary, as often as it occurs, it is always in an external part (*g*). Nay, all the symptoms are such as arise from the general sthenic hurtful powers, and that, also, yield to the general antisthenic remedies, and in proportion to their degree.

(*e*) what are commonly called antiphlogistic, we call debilitating,

(*f*) See above, par. CXIII.

(*g*) It was long an opinion, that the inflammation in rheumatism might be transferred to an internal part, as the stomach ; but that, also, is now laid aside, and all the cases where there could be the least appearance of any such transference, have been found to be cases of the gout, or some analogous disease of debility.

CLXXIII. The same (*b*) is the cause of head-ach, redness of the eye, as well as of delirium.

CLXXIV. There is, however, no reason to doubt, but that inflammation is the cause of that disturbance, which happen to the lungs *in peripneumony*. To the part where the pain is *felt* externally, whatever part of the thorax it is, an actual inflammation is opposed internally. And, as the inflammation is proportioned to the degree of general sthenic diathesis, and never happens but in a high degree of that diathesis ; so that the pain is proportioned to the degree of inflammation (*i*) ; and the state of the pulse must be

(*b*) that we have assigned as the cause of phrenitic affection also

(*i*) The inflammation was supposed a chief and primary circumstance, and its cause and seat, the cause and seat of the whole disease ; while the general sthenic diathesis, and all the symptoms depending on it, was supposed the offspring of the inflammation. But the truth is, in every respect, the reverse of this account. The general sthenic diathesis is the effect of the general exciting hurtful powers. As the effect of these, in a lesser degree, it exists during the predisposition, and before the arrival of the disease ; and, after the disease is come on, it subsists, as certainly as such, for one, two, or three days, as afterwards

be estimated by paying a due regard to its cause. In *the case of* an high diathesis, and high degree of inflammation, its effect, the pain, seated in some part of the thorax, sometimes about the sternum, sometimes nigh the nipples, sometimes farther back on either side, sometimes in the back between or above the shoulders, is acute and pungent, and the pulse very hard and strong. When the diathesis, and the part of it *we call* inflammation, is less, the pain is less acute, more dull, and easier to be borne ; the pulse is (*k*) *still* hard and strong, though less so than in the other case. Afterwards, in the progress of the disease, the pain abates, becomes dull,

wards, when the sign of the inflammation, the pain, makes its appearance. It is only an encrease of it, that induces the latter ; and it is not to be cured by any contrivance of throwing any thing into the inflamed part; there being no such thing to be found in nature, but by the several means of removing the common cause, that is, evacuant and other debilitating remedies. Those, while, at the same time, they remove the other symptoms, by also removing the disease, prove that the common cause of the whole is the general diathesis. The inflammation, therefore, instead of being the cause of the general disorder, is a consequence, like every other symptom.

(*k*) not soft and yielding, according to the common notion, but

the

the respiration, which had been much disturbed by it, becomes more easy and free. The pulse, now, which formerly was only less hard, becomes truly and *positively* soft, and that in proportion to the degree of indirect debility, occasioned by a neglect of the proper plan of cure; or in proportion to the production of direct debility, from the antisthenic or debilitating plan of cure having been pushed too far. But the hardness of the pulse, and encrease of pain, is never to be imputed to the inflammation being seated in the membrane; nor is the softness of the former, and dullness of the latter, to be *attributed* to its occupying the soft parenchymatous substance (*l*), it being impossible that an inflammation, if it occupied either of those parts, should not affect the next points of the vessels in the other. The cause, therefore, of those symptoms that has here been assigned, must be admitted.

CLXXV. The pustles, which accompany certain sthenic diseases, arise from a conta-

(*l*) Such, however, and many other distinctions, equally false, frivolous, and misleading in the practice, have been at all times universally received by systematic, and lately by nosological writers.

gion,

gion, taken into the body, diffused over the whole, and, in passing out of it, detained along with the perspirable fluid, under the scarf-skin. The cause of the distention, and, therefore, of the great number of pustles, is the sthenic diathesis, taking place in a high degree over the whole body, but in a *still* higher in the vessels of the skin, for the reasons formerly (*m*) assigned. In which operation the muscular fibres of the vessels, because they are as much encreased in density, in so far as they are considered as simple solids, as they receive an encrease of tone, in so far as they are considered as living (*n*), are, on that account, so shortened, as not sufficiently to transmit the *imperceptible* vapour of the perspirable fluid. All the sthenic hurtful powers have a tendency to produce this effect, but heat, in a degree within its stimulant range, and short of indirect debility, more than any of them. The same is the cause of costiveness.

Θ Sthenic diseases are often followed by debility, sometimes direct, at other times indirect, as is exemplified in the change of

(*m*) See above, par. CXIII. and CXIV.

(*n*) See Chap. V.

peripneumony into hydrothorax, the explanation of which is evident from what has formerly been said (o).

(o) This paragraph is an addition to the original in MS. The words of it are, "Sæpe sthenicos morbos debilitas, nunc recta, nunc indirecta, sequitur; ut e peripneumonia in hydrothoracem transeunte, discitur; cuius rei ratio ex ante dictis patet."

C H A P. V.

The Aſthenic Diathesis.

CLXXVI. Before the *symptoms* of disturbance *appear*, which only supervene upon a violent degree of morbid state, all the ſenes are dull; the motions, both voluntary and involuntary, are torpid; the acute-ness of genius is impaired; the ſenſibility and paſſions become languid. *The following functions are all in a ſtate of languor*, which is discoverable by the annexed marks: The languor of the heart and arteries is discernible in the pulse; as is also that of the extreme vessels on the ſurface, which is evident from the paleness, the dryneſs of the ſkin, and the shrinking of tumors, and drying up of ulcers (a), and the manifest absence of ſthenic diathesis, to produce any reſemblance to thoſe ſymptoms. That the muſcles are in a ſtate of torpor is demonſtrable by their weakened *action*; and that the internal ſe-

(a) These ſymptoms have lately been conſtrued into ſo many marks amounting to a proof of the exiſtence of ſpafm upon the extreme vessels; but we ſhall, by and by, find a much better explanation of them.

cretions are deficient, *is equally certain from the penury of semen and milk, and the redundancy of fluids in a state of degeneracy. The languor of the digestive organs is manifested by want of appetite, loathing of food, sometimes thirst, sickness of stomach, vomiting, weakness of the system, and evident penury of blood.*

CLXXVII. In the same diathesis, whether as not having attained to the height of disease, and only remaining within *the latitude of predisposition*, or as raised to the measure of actual disease, the intellectual faculties and the passions are impaired. In this way are the functions impaired.

C H A P. VI.

The Asthenic Diathesis illustrated by an Explanation of its Symptoms.

CLXXVIII. SHIVERING is not unusual at the commencement of asthenic diseases of any considerable severity ; and that, as often as its cause, a very deficient perspiration, takes place. In this case the cause of the deficiency is, from the weakness of the whole system, that weakness of the heart and arteries, in consequence of which they propel their fluids every where with difficulty, and in their extremities with still more difficulty, or scarce at all. Hence the perspiration ceases. The same is the explanation to be given of the sense of cold, when it accompanies the shivering.

CLXXIX. In asthenic affections the pulse is weak, soft, small, and very quick. The softness, when it can be perceived for the smallness, as well as the smallness, is occasioned by an under-proportion of blood, arising, during the period of predisposition,

from a scantiness of animal food, and an excess in the use of vegetable; or from a deficiency of aliment upon the whole, whether from the one or other source. The cause of the weakness and very great quickness of the pulse is the same deficiency of nourishment, as well as of all the stimuli, such as that of strong drink, that of mental or corporeal exercise, and an under-proportion of blood.

CLXXX. Since the excitability can only be gradually worn down (*a*) and the strength, thereby, repaired; if, at any time, therefore, the pulse becomes full and hard too soon, and without a proportional relief of the symptoms, that is a bad sign, and happens because the stimulant plan of cure (*b*) has been pushed beyond the proper rule (*c*); and it is *a case of* indirect debility superadded to the direct (*d*).

CLXXXI. The same is the cause of the paleness and dryness of the skin, as that of a checked perspiration; that is, the weak-

(*a*) See above, par. XXVI. XLIII.

(*b*) otherwise the proper one,

(*c*) See above, par. XLIX.

(*d*) See above, par. CLVI.

ness of the heart and arteries. Hence the blood is not sufficiently propelled to the surface of the body.

CLXXXII. Head-ach, which is a most frequent symptom of asthenic affections, and pains in the joints, which are more rare, are occasioned by a scantiness of blood: for such is the effect of the blood in distending the vessels, that a moderate distention, such as takes place in health, excites an agreeable sensation; and every thing, either above or below that *standard*, *occasions* an ungrateful one, and, therefore, (e), pain. But, we are much less in this case, than in that of asthenic pain (f), to suspect inflammation for the cause of the pain; because, not only the pain here, but even delirium, yields so easily to the stimulant method of cure; which would not readily happen, if so delicate and sensible an organ, and *one* so necessary to life, laboured under an affection so liable to destroy the texture of the affected part.

CLXXXIII. Neither in general, is delirium, and for the same reason, (g) to be im-

(e) when it rises to a certain degree,

(f) See above, par. CLVII.

(g) that has been just now mentioned,

puted to inflammation. It is, on the contrary, to be attributed to a scantiness of blood, and a deficiency of other stimuli. Nor is that by any means to be doubted ; since stimulant remedies, which have no effect in filling the vessels, successfully and quickly cure every delirium depending on debility (b).

And, when, in consequence of the removal of the disease, and of the re-production and establishment of the healthy state, enough of nourishment is taken in and digested, then *it is that*, at last, the mental function receives a complete and solid re-establishment.

CLXXXIV. Thirst and heat, which do not less distinguish asthenic, than sthenic diseases, and are not less frequent symptoms,

(b) This is a fact as new, and of as much importance as any in this whole work. Physicians, hitherto, had no distinct notion of a variety of inflammations ; and had scarce any idea of any inflammation, but such a one as was to be treated with bleeding and evacuation ; nay, often, when they had no reason to suspect inflammation at all, the mere circumstance of pain was, in their estimation of it, sufficient to warrant a profusion of bleeding without end. But, the truth is, that pain may not only arise from an inflammation, which they had no idea of, and which was to be cured by stimulants, but it arises from spasms, convulsions, and even from emptiness.

arise

arise from the asthenic diathesis in the throat, and on the surface of the body, checking, in the latter case, the perspiration; in the former, the excretion of the saliva, the exhalable fluid, and the mucus, *and that* from the atony and relaxation of the extreme vessels. In consequence of the former, the throat being not sufficiently lubricated with a due quantity of its respective fluids, is scorched with thirst. The effect of the latter is, that, the perspirable fluid being detained under the cuticle, together with it the heat, which in a free perspiration usually goes off in waste into the air, and remains nearly of the same degree, is accumulated and increases. But the increase of heat depends not on the state of excitement, or, as it is commonly called, the principle of life, since it happens both in the sthenic diathesis, and, likewise, in indirect, as well as direct, debility. But the weakness of the vessels on the surface of the body, under which the throat, and whatever part is accessible to air, is comprehended, is a part of the debility of the heart and arteries; the latter a part of that of the whole system.

CLXXXVIII. This asthenic thirst, which is a much more frequent and more violent affection than the sthenic, is preceded by loss of appetite; the loss of appetite by loathing of food; it is succeeded by sickness at stomach, vomiting, often an acute pain of the stomach, and other troublesome symptoms; the explanation of which we next proceed to.

CLXXXVI. Want of appetite, loathing of food (*i*), depend upon a debility of the whole

(*i*) These symptoms of want of appetite, loathing of food, thirst, sickness at stomach, vomiting, and acute pain of the stomach, as well as those that follow to the CXCV. and from that to the CXCVIII. form a chain of symptoms depending upon encreasing debility, which, instead of being different in kind, are all connected by an uniform operation of nature. And they furnish an instructive instance of the erroneous mode of judging of the nature of symptoms, and morbid affections, which has been so prevalent in all systems of physic, that we are yet acquainted with. However different in appearance, they are not only similar, but all unite in forming one and the same kind of disease, one and the same morbid affection: which is proved by their arising all from one and the same set of hurtful powers, to wit, debilitating; and by their being cured by one and the same set of remedies, to wit, stimulant. The former powers may vary in degree, but they are all debilitating; and the latter may also act with differ-

whole body; as is proved by all the debilitating antecedent powers that produce them, always acting by debilitating; and by all the remedies, which both prevent and cure them, always acting by a stimulant and strengthening operation. The cause of appetite is a strong and sound contraction of the fibres of the stomach, by which digestion is supported (*k*), and the excretion of a fluid, such

different degrees of force, but they are all stimulant. And the state of the system, from which the former constitute a deviation, as well as that, to which the latter produce a return, is health, which is always the same.

(*k*) The fibres of the stomach are muscular, and partly longitudinal, partly oblique, or approaching to circular. When the food is taken in, the former are contracted and shortened, by which they raise the under part of the stomach, which is unfixt, upwards. These gradually relax as the food, after its first digestion in this organ, and its conversion into a more fluid form, in the same gradual manner, passes out of the pylorus, or under orifice of the stomach. This operation takes off the distending weight in the direction from above downward; and, as the food, in proportion to its conversion from a more solid to a more fluid form, is more and more collected into the under part of the cavity of the stomach, this gives a pressure in the lateral way, and, therefore, throws the other fibres into contraction, by which the sides of the stomach are squeezed together, and, thereby, perform the office of throwing

such as the gastric (*l*) liquor, such as the saliva (*m*) : and to the effect of both a certain emptiness of the stomach is necessary. But none of these circumstances can take place in a *state* of debility. The fibres do not contract with force ; the extreme vessels do not pour out their fluids ; the matter of food, formerly taken in, is not dissolved, and

throwing out, by the pylorus, the remaining part of the alimentary matter. Besides these successive actions, the muscular substance of the stomach is so constructed as to be provided with fibres, the motion of which, when the stomach is full, is upward and downward ; when empty downward only. All these motions give the alimentary matter the mechanical agitation necessary to promote its mixture.

(*l*) or fluid peculiarly secreted and excreted in the stomach.

(*m*) The gastric fluid, poured into the cavity of the stomach, as well as the saliva that follows it from the palate, and the watery or other drink taken in by the mouth, contribute to change the food more and more into a fluid consistence, which is a change only of its form ; but, by certain means, a change also of its nature, called in chemistry proper mixture, takes place. This change is chiefly effected by the gastric fluid, to which, perhaps, a certain relation that the other fluids bear to the alimentary matter in this living organ, contributes. Another means of promoting the solution that goes on in this process is the heat of the stomach.

properly

properly mixed, and in that state thrown out of the stomach; but continues in a great measure unchanged and indissolved. Hence it is, that there is no appetite for food, and in a higher degree of it, that a loathing takes place.

CLXXXVII. In the same manner has thirst been explained (n); and in the same manner is the sickness at stomach, which is a higher degree of *affection* from the same cause; for when there is strength and vigour, sensation is most agreeable in every part of the system, as well as in the stomach and neighbouring parts.

CLXXXVIII. With respect to vomiting; it is the chief of all these affections, that we have been speaking of: for to such a height has the atony and laxity of the fibres *in the stomach* gone, when it comes on; to such a degree has the collection of crude nasty matters proceeded, and the distention of the stomach from these last, and air let loose *is become so exquisite*, that the fibres are oppressed, and cannot perform their motion from the upper to the lower part, which is commonly

(n) See par. CLXXXIV.

called the peristaltic motion. And, as in every case, both of health and disease, the tendency of that motion is always from the stimulus in an opposite direction; downward when the stimulus proceeds from the mouth, and upwards when it comes from the stomach; in that way it is that the crudities, and air let loose, of which mention has been made, acting as a local stimulus, direct all the motion, that they excite, towards the upper parts of *the canal*. This inverted motion, being contrary to nature, can never be agreeable; and hence, before the arrival of the vomity, stomach-sickness, arises; which when it continues for any time, must be violent, because the local stimulus rouses the muscular fibres into violent and irregular motions.

CLXXXIX. The cause of pain in the stomach and intestines, and other parts, both internal and external, under asthenic diathesis, is spasm. Spasm in any internal cavity, that is, in the organs of involuntary motion, is, by means of the debility in common to its seat with the whole body, a relaxation and atony of the fibres, and together with that a distending matter; what constitutes that matter

matter in the stomach is the fardes or foul crudities, in the intestines; hardened excrement; in both air let loose. The effect of this matter in the distention that it gives, does not so much depend upon itself as upon the lax state of the fibres distended by it; for the fibres, when strong and vigorous, easily repel the distending power, which overpowers them in this state: but the relaxed fibres, of which we are speaking, yield more and more, *and that* in proportion to the urgent force exerted on them, till losing all power of resiliion or contraction, all power of relaxation, they continue immoveably contracted. All which happens according to the nature of that property in muscular fibres, by which, when they are stretched, they do not, like common elastic matter, only contract when the distending power is removed, but even while it remains. During such action and suffering, the sensible fibres undergo a certain violence; and hence the pain. But, that more is to be attributed to their own laxity, than the distending matter, is proved by stimulants restoring the tone and density, which are exactly in proportion to each other, as de-
pend

pending upon the same cause; by which means contracting in the manner of sound fibres, and powerfully reacting, they, without any assistance, as has lately been ascertained, restore the peristaltic motion, and drive downward before them the matter, still remaining, and still continuing to distend (o). In this way wine, aromatics, and volatile alkali, and, above all the rest, the various forms of opium, dislodge from its seat *all* such *burful* matter without either vomiting or purging, and that without any difficulty, and in a very short space of time.

CXC. The pain, which is so often troublesome in the external parts of the body, also depends upon spasm, but not with the conjunction of a distending matter. And a power takes the place of it, which is not to

(o) The prevailing notion with respect to this kind of affection has been, and still is, that its cause is the matter here spoken of, which is only an effect of the cause, and that its cure, when the affection is in the stomach, is vomiting to carry off the supposed cause. But its true cause is the laxity of the fibres, and their atony from the general debility, yielding to the distending force of the matter, and thereby losing their tone and density more and more; while vomiting therefore increases, stimulating removes the disease.

be referred to any matter, but to a certain effort of the will in moving a limb (*p*). By means of that the spasm is excited in the same manner as in the other case, by distension, and often with the most exquisite pain, where, as the effect is the same, that is, a spasm, arising from debility, and to be removed by restoring the strength; for that reason the cause also must be the same, and be reducible to debility, together with something that altogether resembles debility, and possess a power equal to it. In this way of reasoning (*q*) we may often safely rise from

(*p*) See LVIII.

(*q*) a way of reasoning never made use of in medicine before, but which runs through, and influences most of the propositions in this work. It is further to be observed, that, upon no occasion, can we ever arrive at an adequate knowledge of abstract causes; that the eagerness of mankind to rush into wild and fanciful explanations of them, without any regard to real phenomena of nature, has been the cause of all the false phenomena that ever appeared in the world, and that the only sure and faithful guide to the study of causes is a cautious and painful investigation of the effects and phenomena of nature that proceed from them. See more upon this important subject, and, indeed, a complete discussion of it, in my book, entitled, "Observations on the several erroneous Systems of Physic."

the

the contemplation of known effect to that of unknown cause. The pain we speak of at present, *is that which respects the spasms of the muscles.*

CXCI. There is another pain, less confined to the same part, more diffused, and equally troublesome, which is not supported by distention (r), but by another local stimulus, equally arising from debility, of equal tendency to encrease the debility, and, by its debilitating operation, together with the other symptoms of debility, hastening on death. This pain arises from a concentrated acid, which is sometimes predominant in the alimentary canal, when under the influence of great debility, of which cholera chiefly is a clear example; but, besides that, all the affections of the alimentary canal, that are accompanied with vomiting and a loose belly, are more or less examples of it.

CXCII. This acid is not the primary cause, but only a symptom supervening upon the disease, already formed in consequence of the debility, its proper cause, and now fully

(r) correct the word spasms in the original, by substituting "distentio" in the place of it.

established, arising from the same source as the other symptoms, and to be removed by the same remedies. When the same acid has arisen, it continues to encrease all debility that happens to be predominant, either in the first passages, or in the rest of the body: And, while it exerts that operation over the whole body, its chief influence is in the part where it exists, and where the diminution of the force of the disease is most wanted.

CXCIII. But, though it be itself in that way the offspring of debility, and of a tendency to create further debility, in the same manner as spasm has been said *to be*; still there is not, either for the sake of changing, or throwing it out of the body, occasion for any other indication of cure: For, as it has its rise at first from a general cause, so upon that it all along depends; whatever has the effect of overcoming the other symptoms, has also that of overcoming this. For that purpose it is, that, as in the case of spasm, stimulants, not emetics, not purgatives, nor any other debilitating powers, are required.

CXCIV. As the acid, which has been mentioned, produces the pain in the inter-

nal parts, or in the organs of involuntary motion; so in the external parts, or organs of voluntary motion, it is occasioned by something that produces the same effect as the acid, that depends upon the will, and acts in conjunction with the convulsive *state*; and, as in the case of spasm, there is no matter that corresponds with the distending, so in this there is none to correspond with that which produces the pain. Nay, as the spasmodic case is represented by any cramp of the muscles, so is the convulsive by any convulsion; but, above all, by epilepsy. Finally, as in the former, the same reasoning from known effect to unknown cause proves the sameness of the external and internal case, it equally proves their sameness in the latter (f).

CXCV.

(f) All this reasoning with respect to spasm and convolution, showing them to be the same, and only a part in the whole, a link in the chain of the other asthenic affections, which have been mentioned, as well as the facts and arguments next to be brought, which will serve to prove all that follow to be also the same, is, of itself, of the highest importance to mankind. In a particular manner, the whole tribe of diseases of the alimentary canal, and almost all those of children, all, indeed, but the contagious

CXCV. The simple course of *morbid affection*, from its slightest to its most violent degree (to take a review of the subject from the place where we set out), is, that it begins with loss of appetite, and is brought on by want of the supports of food and of other stimuli, or by an overproportion of stimuli, and proceeds through all the intermediate degrees to the spasmodic or convulsive pain. For the reasons lately assigned, there is first no appetite for food, and if the patient perseveres in the debilitating process of cure, and food is not administered, such, suppose, as can be taken in the form of soups, a loathing of it follows. By-and-by, if still nothing is used to produce stimulant effect,

tagious eruptive ones, are both explained, and their principle of cure ascertained, with geometrical exactness. Here, then, at once is a discovery, upon scientific principles, of the true nature, and certain cure, of more than one-half of the diseases of the human race; the method of cure arising from this doctrine having never failed in any of them, and never succeeded upon a contrary plan, the debilitating and evacuant, so universally recommended by the authority of the schools. The spasms and convulsions of the external parts, unless when immoderate in degree, are equally certainly removed by the new method, and even epilepsy and tetanus yields to it.

thirst will come on ; there will be the most keen desire for the most debilitating power, cold water, which will be preferred to the greatest dainties, and will be greedily swallowed (*t*). To this stomach sickness immediately succeeds, which, unless prevented by a diffusible stimulus, such as a glass of the most pure and strong spirit, or, failing that, another, perhaps, *in some cases* a third, rushes instantly on to vomiting. When the affection rises a little higher, during the vomiting a violent pain arises in the stomach, *giving a sensation* as if there were a bar of iron in it, forcibly stretching and tearing it across (*u*).

When

(*t*) When this asthenic thirst comes on, it is the highest luxury in nature to be allowed a free indulgence in the use of cold water, which is always hurtful in proportion to the degree of its coldness.

(*u*) A lady, after nursing her twelfth child for seven months, was found by her husband, a physician well acquainted with the new doctrine, very low spirited one evening. She was of a delicate, thin, exhausted habit, and had been subject often before, towards the end of her periods of nursing, to loss of appetite, colic, dejection of spirit, and as often cured by removing the child from her breast, and putting her upon a rich stimulant regimen. Her friend and physician perceiving the cause of her dejection, ordered two of their daughters, who happened

When the affection becomes still more severe, and the cause of *the disease* still higher in degree, every kind of torture is undergone; an head-ach comes on with a feeling of strokes like those given by an hammer. These symptoms of disturbance are communicated to the alimentary canal, for the most part not immediately, but in consequence of the disease remaining, and lurking, with an intervention of intervals of deceitful respite. The belly is often affected with gripes and great pains, and exceedingly loose; but, which will not be wondered at in an inverted state of the peristaltic motion, it is oftener constipated, and, from time to time, undergoes all the vicissitudes of alternate vomiting and

pened to be grown up, to sit up and rock the child in the cradle all night, and also watch their mother to administer to her the things he had ordered. They themselves went to bed. The reader should have been informed, that such was this lady's lowness of spirits, that tears bursted from her eyes upon hearing the sudden order for the weaning of the infant. He fell asleep; but in an hour's time was wakened by the noise of a most violent vomiting she had fallen into. She had a pain in her stomach at the same time, from her account of which the description above was taken. All this had been occasioned by her applying the child's mouth to her nipple.

purgings. Among the troublesome symptoms, that have been mentioned, are comprehended dyspepsia, *called in common English Indigestion*, the gout, diarrœha, or *loose-belly*, dysentery, or the bloody-flux, cholera (*x*), the colic (*y*), the iliac (*z*) passion, the green purging

(*x*) or that disease, the urgent symptom of which is alternate vomiting and purging, the effect of which, while their cause is a general weakness over all, but prevalent in the first passages, is to encrease the weakness, from which they proceed to such a degree, as to hurry on the patient's death, with every symptom of expiring debility, in the short space of fifteen hours. This happens in the warm countries, as the southern parts of Europe, and especially in the torrid zone, whether in Asia, Africa, or America.

(*y*) The colic has been commonly treated by purging and bleeding, and low diet; but in no instance has that treatment of it been successful. Opiates were particularly forbidden upon the supposition of their constipating the belly; but the truth is, that the colic, as well as diarrœa (which has been supposed a disease of an opposite nature, from the seeming contrariety of looseness of the belly, and costiveness to each other), are the same kind of affection, only differing in degree. And the colic is to be removed by no other means than those that remove the simple looseness; that is by durable and diffusible stimulants.

(*z*) which is that higher degree of colic where vomiting comes on, and the peristaltic motion is so inverted as to

ing of infants, the worms, *that wasting of the body called Tabes, or Consumption, and atro-*

to occasion the rejection of stercoreous matter by the mouth. Sometimes in the progress of the same disease, especially when treated only by evacuation and bleeding, a portion of gut is insinuated into the cavity of the next portion. This is called in the art Volvulus, or Intus Susceptio. The quick and effectual cure of colic before the symptoms of volvulus make their appearance, is a good proof that the latter is induced by the purgative medicines, employed to clear away the obstructing cause, acting with such relaxing effect, and urgent violence, as to turn back the inverted motion in one part, while it continues inverted in all the rest, and particularly in the portion next to it. The ordinary evacuant plan, therefore, is a cause of the violence of the disease in all its stages; and lastly, of the last, which becomes a local and immoveable affection. Nothing could be more absurd than the reasoning that has directed the practice of physicians. In which, besides the general rules of bleeding to cure bleeding, vomiting to cure vomiting, and purging to cure purging, and besides the contradiction of employing purging in colic, which by the last rule only applies to diarrhoea; they have taken it into their head, that a good means of removing the obstructing matter in colic, was to throw in a large quantity of heavy substance with the intention of forcibly displacing it; reasoning in that way not so well as a soldier would do in clearing away any foul matter from his firelock; for it should have been remembered, that whatever effect such substances, as quicksilver, might have by their weight in

atrophia (*a*), both of them diseases chiefly of children, and by far the greatest part of the diseases of that age.

CXCVI.

pushing downward any obstructing matter, they must operate with a contrary effect, as often as in the convoluted state of the intestinal canal, the course of any portion was upward. Neither did it ever strike them, upon any one occasion, what they should never have left out of view upon every occasion, that the idea of the action of dead matter upon dead matter, whether mechanical or chemical, that is, perceptibly or imperceptibly mechanical, is never to be transferred, in sound reasoning, to the mode of action of the same dead matter on living matter; the excitement in no case whatever admitting of any such analogy.

(*a*) These two diseases, according to a theory that has at all times prevailed in the schools, and has pervaded all medical systems, are supposed to originate from an obstruction in the mesenteric glands, through which the chyle, or alimentary matter, after undergoing a double preparation, one in the stomach, and another in the first convolutions of the intestines, has to pass before it arrives at its common receptacle, the thoracic duct, in order to be thrown into the venous mass of blood; and to remove it, still upon the same idea, as if all the cavities of the animal economy, whether great or small, were to be cleansed, like the soldier's firelock, no limits were set to the use of gentle aperients, and particularly the use of mineral waters. And they used gravely ("risum tene-
"atis amici!") to tell us, that with the help of a course of time, suppose the arrival of the infant, or child, at the

CXCVI. As the cause of the disease proceeds, and the exciting hurtful powers prove more

seventh year of his age, that would carry off the disease by its detergent operation, provided the obstruction were not so great as to induce death before the lapse of that period. That all this is silly theory devoid of all foundation in truth, is proved by the completion of hundreds of cures in the shortest spaces of time, by means of durable stimuli, which act upon their delicate frames with such efficacy as to supersede, unless in the most violent cases, all use of the diffusible. This remark applies likewise to worms, for the cure of which no bounds were set to the use of purgatives, upon the idea of clearing away, the stuff in which this vermin nestled ; a practice not so judicious as that of some foolish boys, who place their success in bird-catching upon the chance of bringing down the nests from the top of high trees, by throwing sticks and stones at them ; while other boys, both more sensible and alert, climb up and seize every one of them. The cause of worms is the same as that of all the other diseases we have spoken of, differing in nothing but in what they all differ from each other, mere degree. Debility over all, but prevalent in the alimentary canal, occasions a weakness both in all the other functions, and particularly in that of the peristaltic motion. This state implies a similar weakness in the vessels that pour their fluids into that cavity ; their weakness implies an enlargement of their diameters, and that enlargement an increase of the quantity of fluids thrown in, without any increased impulse behind. Hence arises a colluvies of matter, which the increased peristaltic motion is not able

to

more urgent; the external parts are drawn into consent, and now the organs of involuntary motion are affected. Sometimes the legs, sometimes the arms, and other parts, *differently upon different occasions*, are tortured with cramps; sometimes the thorax (*b*), variously all round; sometimes the shoulders, sometimes the sides, sometimes the back, sometimes the neck, are affected with pain, from which pains no part of the human body is exempted, *and* the region of the lungs, of the liver, and of the stomach, are especially liable to them. The smart pains that affect those parts, and are supposed to to throw off. The colluvies is increased by the use of vegetable matter and fruit taken into the stomach, and depositing their feculent parts on the intestines. The indication of cure is not to increase either the general, or particular part of the cause, by purging, and the use of other debilitating powers, but to strengthen the whole living system; and especially the intestinal canal, by the whole round of stimulant remedies diffusible or durable. To this treatment the tabes and atrophy will yield in a few days, or even hours; the worms in as many weeks. And they are all increased by the common plan of cure, as universal experience has proved to a demonstration.

(*b*) read thorax, in the original, for pectus, the latter signifying only the fore part of the chest, which is not the complete meaning here, the former the whole chest.

proceed

proceed from internal inflammation, are, in reality, owing to spasmodic or convulsive affection (c). That this is their true origin is proved

(c) Endless have been the bleedings and other evacuations employed to remove those painful affections, and as dismal has been the effect of that method of cure. The universal rule, suggested by the principles, and confirmed by the practice of this new doctrine, is to invigorate the whole system, and apply any diffusible stimulus, particularly laudanum, to the pained parts. By that practice I know not one ~~case~~, of some hundreds, that either I or my pupils have ~~treated~~, that has failed. The gout will sometimes make its attack in this way. But whatever be the particular force of disease, with which they may seem to have any connection, the only diagnosis here necessary is to be sure that the true peripneumony is not the morbid state. When that is out of the question, and whether the painful complaint be denominated bastard peripneumony or not, the only indication of cure is what has been just now mentioned. A young lady, with whom I am nearly and tenderly connected, has been often affected with an acute pain in her right side, mostly fixed and solitary, at others accompanied with a certain numbness and senselessness in her extremities, commonly with loss of appetite, and some degree of head-ach. The effectual method of cure is to apply rags dipped in laudanum, volatile alkali, or æther, and renew them as often as they become dry, and to support her internally with durable and diffusible stimuli, proportioned in kind and quantity to the exigence of the case. This method

proved by the renewal of stimuli, removing the affections, often immediately, always in a short time, and reproducing the healthy state. It is proved by the unsuccessfulness of the contrary method of cure, *which proceeds* upon bleeding, the various modes of purgation and abstinence. Nay, what even makes more for the same conclusion, is, that, while abstinence almost alone is often sufficient to produce the pains, rich diet also alone has been sufficient to remove them (*d*).

method of cure of a morbid affection, that upon the contrary debilitating evacuant plan would be readily and quickly converted into an incurable asthenic disease, has always proved infallible in removing the attacks, which never after return but when she has enfeebled herself by keeping the house too much, and neglecting air, exercise, and the use of the other diffusible stimuli. Friction used over all the affected parts, is also found useful in supporting the stimulant operation of all the other remedies. There is in the fens of Lincoln, where an eminent physician, and follower of this doctrine, practises, a disease called a bastard peripneumony; in which, though it had always baffled all the efforts of the common evacuant practice, he never lost a patient, by exercising the contrary one.

(*d*) This I have often experienced in the case of the gout. Before dinner, when my stomach was empty, I have limped in going abroad to dine. But after having made that meal heartily, and taken a glass or two of wine, have returned with a perfect firm step, and free from all feeling of pain and uneasiness.

CXCVII. The same pains, sometimes combined with enormous motion (*e*) sometimes without it (*f*), are absolutely free from inflammation. To distinguish them, then, from the pains that flow from inflammation or a similar origin, the concourse of *accompanying* symptoms must be attended to. Sthenic diathesis points out *that whatever* pains *occur* are sthenic; and the information received from the asthenic diathesis is, that the pains *appearing in it are participant of its nature* and as certainly asthenic. This remark is of deep application to diseases of daily occurrence, and overturns the common practice. Even head-ach, which is so frequent an affection, is ten times to be removed by the stimulant plan, for once that the contrary answers (*g*).

(*e*) as in the convulsive kind so lately spoke of, where the enormity of motion is sometimes external and in the organs of voluntary motion, sometimes internal, as in cholera and so forth.

(*f*) as in the spasmodic pains, head-ach, pains in the legs and soles, where there is an inability to perform the due motion.

(*g*) The true reason for all this, and innumerable errors in the practice, is that the leaders in the profession never understood any diathesis but a sthenic one, or any indication

CXCVIII. Symptoms of disturbance occur also in asthenic diseases as well as the sthenic. Such a state of disturbance (*b*) takes place in the alimentary canal in the cases of hysteria, colic, dyspepsy, and the gout. Thus in the alimentary canal, besides the pains, mentioned above, a certain sense of burning, anguish, contortion and direful torture, exhibit a set of appearances, formidable in the

tion of cure but an asthenic, to which they gave the name of antiphlogistic, as they did that of phlogistic to the diathesis. By his reformation of the erroneous plan of cure, that his cotemporaries, the Alexipharmacis, had introduced, in the small-pox and the few other sthenic diseases that ever occur, in all the rest of the general diseases, Dr. Sydenham by his authority confirmed the error. He left also the measles as he had found that disease, and all other general diseases, which are much more in frequency than 97 out of the 100, or 97 to 3 of the sthenic. Great men had need to be cautious, as the least inadvertency in them, not to say essential mistakes, never fails to lead their followers, who are commonly servile imitators, and implicit believers, into capital error. If ever they attempt any thing of themselves it is commonly to raise a crazy superstructure upon a false foundation, it is commonly to refine upon error ad infinitum.

(*b*) All in the original from "Talem" in the last line to "febribus" in the first of the next page inclusive is erased, as being an anticipation of a subject, that is to follow in the CC paragraph.

highest degree, both to the patient and bystanders, and which beget a suspicion of their proceeding from inflammation as their cause. But that those affections have nothing to do with inflammation as their cause, and that they depend upon a state of the part quite the reverse, has been proved by the stimulant method of curing them turning out successful in every instance in which it has been tried (i). The same fact is confirmed by
the

(i) Till this doctrine appeared, it was impossible to erase from the minds of physicians an impression that had been deeply made there, that, nothing but the only inflammation, that they were acquainted with, could be the cause of such pain and torture, as is described in the text. I have more than once experienced the whole concourse, here mentioned, and have always found them to yield to the most stimulant method of cure, that I could contrive. I once laboured under this modification of asthenic disease for no less than ten days, and was always able to overcome it in two hours, and procure an interval of complete ease and relief for the rest of the day. The remedies employed were the whole round of diffusible stimuli, as opiates in all their forms, camphor, musk, volatile alkali, and æther, &c. By these the functions for the time were completely restored. But their stimulant effect was no sooner perfectly gone off, that is, after the interposition of a long sleep, through the night, than the symptoms returned with a violence little short of what it

the use of wine, opium, and other diffusible stimuli. After that, and still in conjunction with their use, animal soups, and next solid meat, and the usual diet, the usual way of living, and guarding against debility, effectually re-establish the healthy state (*k*). This plan

it had been the day before. This was proof positive, that their nature was asthenic, or consisting in debility; since they yielded to stimulant remedies; and that the debility was exquisitely great, since it required so high a degree of stimulant operation to remove it. While that is the undoubted fact, there is a nicety with respect to proportion to be attended to in this case. It is a rule, that the degree of curative means, whether in the cure of sthenic or asthenic diseases, should be accommodated to the degree of the diseased state or degree of the cause. If too little of the curative means is employed a proportional part of the disease will remain: if too much, the disease will be more than removed, that is, another state which may be morbid in another extreme, may take place. Too much was once employed in this affection, and the effect was, that the disease was not eradicated till the tenth day of its course from the beginning.

(*k*) The rule here is, if indirect debility be the cause, to begin with a high degree of stimulant cure, and gradually reduce it to the ordinary degree that is sufficient for the healthy state. And the caution is to be sure of this gradual reduction, otherwise the indirect debility will be liable to return the moment the effect of the stimuli is gone off. By an attention of this kind a disease depending

plan of cure proves to a demonstration, that those affections are most foreign both from
ing upon indirect debility may be cured in the sixth part
of the time, that would be taken up by the cure, when
the remedies are every day carried beyond the due bounds.
For example, if the indirect debility be in the table the
effect of an application of 71 degrees of exciting power
instead of 40, that is to say, the excitement is worn down
to 9 instead of being up at 40; it is evident, that an ap-
plication of 71 degrees by way of remedies, will leave the
disease where it was. Suppose only 65 degrees of stimu-
lant power administered; the excitement will fall to 66,
and the wasted excitability rise to 15. Next day let only
a degree of exciting power as 60 be applied; then the
degree of excitement will be that number, and that of
excitability 20. Five degrees of exciting power still less
will reduce the morbid excitement to 55, and raise the
excitability to 25. And so on may the matter go, till the
excitability is raised to 40 and the excitement reduced to
the same number. But, if the reduction be much less by
the day, the cure will be proportionally slower. Nay,
such an error may be committed as to encrease the dis-
ease instead of reducing it, which will happen, as often as
a degree of stimulant power is applied, which is more than
equivalent to that which produced the disease. All this
attention and caution is necessary in the cure of asthenic
diseases of indirect debility; while that of those of direct
debility is easy and simple, to wit, to give the stimulants
in small proportion and often repeated, till the disease is
removed, unless, which may happen, you can guess the
proportion, which may suffice to remove the disease at
once, or, at least, twice.

sthenic inflammation and every degree of sthenic diathesis; and, besides the general sthenic inflammation, not appearing to affect internal parts, it affords another argument against inflammation in this case being the cause (l).

CXCIX. The asthenic pulmonary disturbance distresses *the patient* with so intolerable a fixed pain, that no bounds have been set to bleedings for the cure of it. *But* all such bleedings have not only been useless, but detrimental, and often fatal; whereas, on the contrary, the stimulant plan of cure has always succeeded (m). By it the respiration is interrupted, and nearly all the symptoms that accompany an actual peripneumony, distress *the patient*, and to such a degree, that it has been suspected, there was an inflammation in the case, or rather it has confidently been believed *that there was*. Or, if any difference

(l) See CLXXXII. and CLXXXIII. par. above.

(m) A young lady afflicted with these symptoms was in the course of a month bled thirty times, always with a temporary relief, but with a return of the disease more violent than ever. She was then put upon a stimulant plan, and in less than a month restored to her perfect health. That was among the most early cures taken from this doctrine.

was discerned betwixt this affection and that phlegmasia, or sthenic general affection with inflammation; that was only a shadow of distinction, and led not to the rejection of the notion of inflammation being the cause, but only gave occasion to a question about its seat. But truly, that there is no inflammation at all here, at least as a cause, and that the disease depends upon pure debility; is sufficiently proved by the arguments, that have been brought before. The disease is increased by the antiphlogistic, and diminished, and removed, by the stimulant plan of cure.

CC. The formidable symptoms of disturbance, that accompany epilepsy, apoplexy, and fevers, such as stupor, a disposition to sleep, in them all; in fevers often that false, watching, that is called typhomania, and sometimes coma (n); in the latter, (or fevers), starting of the tendons, in the former, (or epilepsy and apoplexy), convulsion or a diminution of the voluntary motions; which by most physicians have been partly imputed to irritation (o), as typhomania and the starting

(n) or an insuperable proneness to sleep,

(o) No diseases are more opposite to each other than high sthenic diseases, such as the common inflammatory fever,

ing of the tendons ; partly to plethora, either alone and pure, or together with it mobility : All these without distinction are evidently owing to the same cause, upon which all asthenic diseases depend, that is, debility. Which is proved by the debilitating hurtful powers, whether acting directly or indirectly, or peripneumony, and proper fevers ; the former, in the table, standing at the head of the scale of increased excitement, and the latter at the bottom of the scale of diminished excitement. And the same method for the cure of both has been pursued, to wit, the evacuant, debilitating. If, in peripneumony, large quantities of blood were taken at a time, the difference has been made up in the cure of fevers by repeating it the oftener ; while, all the other evacuations were carried on with the same profusion in both. When they talked of the respective causes of those diseases, phlogistic diathesis was the word for the high asthenic diseases, and irritation for the high asthenic. But these were words only, while in fact the method of treatment of both was the same, at least, in kind ; and scarcely different in degree. To whatever part of any system of physic we turn our attention, we constantly see one mode of practice running through the whole, and that too, notwithstanding of the supposed great number of diseases, very limited. It turns all upon bleeding, other evacuations, starving, and some other trifling directions under the title of regimen. It was all antiphlogistic to use their own language ; and, whatever other language they held, the nature of the disease, if we are to judge from their treatment, was phlogistic.

alone producing those diseases; and by the remedies, the whole action of which depends on stimulus, alone relieving or removing them. But it is in vain to impute apoplexy to plethora (*p*); as if at that time of life, when the body is nearly worn out and almost bloodless, that is, when the usual *degree* of aliment is neither desired, nor taken in, nor digested, more blood could be produced than in the flower and vigour of human life. On the contrary, at the time when apoplexy comes on, in consequence of indirect debility, induced by old age and excessive excitement in the mode of living, the solids are languid, the quantity of fluids deficient, as also their fountain, the blood. Epilepsy depends upon the same debility, and the same scantiness of fluids, only that its debility is oftener of the direct kind. Fevers may depend upon indirect debility, as in the confluent small-pox (*q*), or where drunkenness has

(*p*) or an over-proportion of blood, see above, CXXXI.

(*q*) The confluent small-pox, as depending upon a very high degree of debility, is ranked among the high fevers in the after part of this work, because the scale is not regulated by the appellations given by physicians, or by any of their erroneous distinctions, but by strict regard

has been the principal hurtful power producing them, but at the same time, their most frequent cause is direct debility. And in all the cases, that have been just now mentioned, debility is the primary cause and final termination both of all the rest of the symptoms and of those of disturbance.

CCI. To the symptoms of disturbance sometimes also belong the following that affect the head; great head-ach in fevers, imbecillity of the intellectual function, confusion of thought, and delirium, *the last* often sufficiently fierce, though occurring in the highest degrees of debility, and leading to efforts beyond the strength. This state often happens towards the end of a nervous fever, even when violent. Inflammation is apprehended, blood is let, but directly from the head; blisters, which are extreme unction in the art, are clapped on, silence and darkness are prescribed, even the most gentle stimu-
to the degree of excitement. And for the same reason is the violent cholera marked nearly in the same place; because the debility, taking place in it, is nearly equal in degree to the most sinking febrile debility; in a word, because the same degree of debilitating power produces, and the same degree of stimulant operation, removes the diseases so assort'd.

lants are forbid. In consequence of the emptiness of the stomach, as well as of the vessels of the whole body, and of the highest degree of languor from the want of many stimuli, vertigo is superadded to delirium, and the patient, deprived of strength, sense and intellect, breaths out his last.

CCII. But in this case there is either no inflammation, or, if there be, it is altogether of a different nature from the general sthenic one. That it is not the latter, the unsuccessfulness of the debilitating plan of cure, and the incredible success of that which first stimulates, and after fills the vessels, afford certain proof: And that it is not any other inflammation is evinced by the so sudden restitution of health. Now, as an impaired use, or confusion of the intellectual faculty is, in a certain degree, always the consequence of debility, whether arising from any other source, or from emptiness or a general inanition of the vessels, *and that too* even in those, who are otherwise sound; where is the wonder, if, in the highest degree of inanition, compatible with life, in the highest degree of diminution of excitement, scarcely leaving a shadow of life, also

the highest degree of failure in the intellectual function, that is, delirium, among other instances of impaired function, should take place. Nay this very fact is certain, and proved to a demonstration. Thus famine, thus drinking water contrary to custom, after a course of drinking to excess, or both eating and drinking with intemperance, a gloomy state of the animal spirits, grief, terror, despair, not only induce a temporary delirium, but frequently bring on downright madness. The same conclusion applies to any considerable loss of blood. For how many persons, after being wounded either in line of battle or on the highway, have never after, and often during a long life time, come to the right use of their senses. To say nothing of contusions, wounds and other injuries, by which the texture of the brain is injured, as belonging to local diseases, of which we are to treat afterwards ; how does cold induce death ? Is it not, amidst a diminution of all the other functions, by a delirium preceding death ? From these facts, of such weight, both from their number and validity, and that bring forward all the powers in support of the argument, it must be admitted,

mitted, that both head-ach, and every failure of the intellectual function, in every degree, and that highest degree of such failure, delirium, depend not at all upon general asthenic inflammation, the only *inflammation* hitherto known; but arise from the highest deficiency, both of other stimuli, and of that, which depends upon a proper fulness in the vessels, that is, debility. Debility then is the most frequent cause of the symptoms, that have been mentioned, as is proved by the restoration of health so quickly upon the new plan of cure.

CCIII. But if ever the asthenic inflammation, mentioned (r) before, excited the tumult of symptoms, which are our present subject; it produces that effect in the same manner precisely, that debility *produces it*, by means of a penury of blood and deficiency of other stimuli. For,

CCIV. The general asthenic inflammation is nothing else but asthenic diathesis, somewhat more violent in a part than in any other equal part (s); and upon this footing,

(r) See above, paragraph CLXXI. and CCII. It is to be defined in the next paragraph.

(s) See above, paragraph XLIX.

that

that the degree of asthenic diathesis *constituting* the inflammation is by no means to be compared with the degree of diathesis in all the rest of the system; because the affection diffused over the whole body is far greater than that confined to a part (*t*).

CCV. Inflammation, in this case, is nothing else, but a state of the inflamed part, of *the same kind* with that of *all* the rest of the body. And, as the inflammation is constituted by a lesser excitement in a part, than in any other equal part; so, before the arrival of the disease (*u*), of which the inflammation is a part, a symptom, or sequel, the

excite-

(*t*) See above, XLVIII, XLIX, L, LI,

(*u*) See above, par. CLXIX. and compare it with this.

The meaning in both is, that, as certain parts of the system have more excitability than others (LI.), so those parts, which in the diseased state are more affected than any other, that is, are either more excited, as in sthenic inflammation, or less, as in asthenic, than any other, keep up the same proportion of disparity before the arrival of the disease, before the appearance of any of the symptoms, and while, as yet, nothing but mere predisposition has taken place. The truth of this proposition is established by that of another so comprehensive as to extend to the whole subject of life; which is, that over the whole living creation, throughout the universe, health, predisposition to disease,

excitement of that part is understood to be proportionally less, than that of any other part.

CCVI. This inflammation (x) should be distinguished from another, which is local: It is general, and depends upon a general diathesis, and only happens when the diathesis has attained to a certain degree; while the local arises from some hurtful power, that produces a solution or vitiation of the texture of the part, without regard either to diathesis or degrees: The general *inflammation* is brought on by the same hurtful exciting powers, which produce the general diathesis, only applied in a higher degree; and the same remedies remove both *the diathesis and the inflammation*: The local inflammation depends upon hurtful powers, that only harm a part, and is removed by remedies that change the state of the part; but is not affected either by general hurtful powers, or general remedies. Examples of

disease, and disease itself, are the same state, only differing in degree, (vid. par. XXIII. and LXV.) Health, therefore, is also comprehended under this same proposition.

(x) mentioned in the two last paragraphs, CCIV. and CCV.

the universal are these inflammations, which accompany the gout, the putrid sore throat, the gangrenous sore throat, and that inflammation which produces sore eyes : The local inflammation will be illustrated by examples, to be produced in their proper places (y) : The general inflammation is attended by debility over the whole system ; which debility is only a sequel of the local, and not always. To remove the former the general method of cure (z) is adapted ; but the cure of the latter turns upon healing up the part. In this way, *then*, there are four *sets of* inflammation, two universal, a sthenic, and an asthenic, and two local ; one of which is sthenic, and the other asthenic. The former often ends in suppuration, often in solution ; the latter in gangrene, and sometimes sphacelus, some-

(y) as in the inflammation, that is produced by a wounding instrument, when a person, previous to such an accident, is in health, and continues to be so after the accident. Or it may still be local, though a person is in bad health when it happens, but so, however, as that the general state of the health is understood to have no concern in it. A wound in a very tender part may induce disorder over the general system ; but still all the symptoms can be traced to the wound, and not to the ordinary cause of general disease.

(z) See par. LXXXVIII.

times at last in death. If, in the end of a typhus fever (*a*) inflammation affects the brain or its membranes, which (*b*) is neither

(*a*) or a low-nervous fever, which is a disease of the highest debility, next to the plague, and often not inferior to that disease in malignity, and, therefore, to be arranged in the scale, as next to that disease, which stands at the bottom of diminished excitement. Physicians have constantly confounded the different degrees of this disease with asthenic ones, affecting the pulse. But they are diametrically opposite as shall be pointed out when we come to the proper place for such distinctions.

(*b*) though strongly asserted. A professor in his lectures gives a case of a typhus fever, where, upon account of delirium and some other symptoms, thought to announce an inflammation in or near the brain, the patient was so freely bled, that the state of the pulse (which is said to have been, in his words, "a *pulsus vacivus*, if ever 'there was such a pulse'"), forbid any further bleeding. The patient was given up, and the extraordinary physicians withdrew, leaving the ordinary one of the family, only, about him. This gentleman, from some impression on his mind, began to think, that another bleeding might be tried with advantage. He bled him and the patient recovered. This is an account of a case that I pretend not to understand, and I believe it will be no less puzzling to my readers, and the more puzzling the more sense they have. It is, however, brought as an example, that in a seeming expiring debility, the highest degree of asthenic diathesis, there may be an universal asthenic debility, that requires bleeding. I have mentioned it, not for the sake

ther yet proved, nor *a* very likely *fact*, it will serve for an *instance* of an asthenic general inflammation.

CCVII. As the general asthenic inflammation is occasioned by a quantity of blood, excessively distending the vessels, *which are* its seat, by *that* distention stimulating them, by stimulating increasing their excitement, by the last producing more forceable and more frequent contractions, by these increasing the tone of the fibres as living, and their density as simple *solids*, and thereby diminishing their diameters (*c*) ; and, consequently, making the blood flow with great effort through the contracted vessels, and, during its flow, produce pain from the high force of the contractions, and the narrowness of the space through which it has to pass ; and as the same, though in a lesser degree, is the cause of asthenic diathesis over the whole vascular system, whether red or colourless : So,

of information, but of caution, to the reader. Any person may see the frivolity and lightness of the theories of our profession, but it requires knowledge and discernment to guard against the seduction of facts.

(c) See LXI. above, and CXXXI.

CCVIII. The cause of general asthenic inflammation is also abundance of blood in the inflamed vessels, producing the same effects in the inflamed portion as in the sthenic inflammation; and, notwithstanding of the penury of blood in every part of the vascular system besides, flowing abundantly into the inflamed vessels, upon account of a greater atony and laxity in them, than in the others, distending them and producing the phenomena peculiar to any inflammation (d).

CCIX. As the indication of cure for the former is, to diminish the quantity of blood, which is the first cause of the struggle, and,

(d) These definitions, apply to all the four inflammations (par. CCVI.) with respect to the state of the inflamed vessels; their differences only depending upon the general state of all the rest of the vessels, which in the local, may be quite the healthy state of these, while, in sthenic general inflammation, it is the sthenic, and in this the asthenic, diathesis, that are conjoined with the inflammatory state. Further, as their cause is influenced by these general circumstances, so also is their cure; the sthenic and asthenic general inflammations requiring the remedies of the diatheses to which they respectively belong, and the local only the remedies suited to heal up the part.

thereby;

thereby, to reduce the excessive excitement to the degree that suits the healthy state, and the excessive contractions, which constitute the struggle, to the moderate ones, which are pleasant and agreeable to health (f) : So

CCX. The indication of cure for the latter is, first, by powerful stimuli, to drive on the quantity of blood which there is in every part of the system, that *the portion which* loiters in the languid vessels of the inflamed part, may be thereby propelled, and the vessels relieved of their burthen ; and then by the gradual administration of seasoned animal food, in the form of soups, and, soon after, and when now the strength is recruited, in a solid form, to fill the whole system of vessels.

CCXI. The two other inflammations, both local, will be treated of afterwards, each in its proper place.

CCXII. That inflammation of the throat, which ends in what they call a putrid (g),
fore

(f) See above, CXXXIV.

(g) The disease, here mentioned, is neither described nor, seemingly, understood, in medical books and lectures. In this work it is taken, as every thing else is, from nature, at the bed-side of the sick, and deserves so much the
more

fore throat, is singularly insidious. During the first days it differs little in its appearance from the sthenic sore throat. The general symptoms are also similar. The pulse scarce exceeds the measure of the sthenic pulse in its frequency and other characteristics. For some time the whole disease proceeds with gentleness and tranquility, excepting, that a constant rejection by spitting of a tough mucous matter is troublesome. At last, when head is not made against it by means of the most powerful stimuli, a period arrives, when all the symptoms are suddenly precipitated into a bad state; *when* the pulse becomes very quick, very weak, and remarkably small; *when* the strength, over the whole system, sinks; and now it is not a moderate portion of diffusible stimulus, not before administered, that will stop the much to be lamented death of the greatest ornament of human nature (b). The best plan

of

more attention, that though it is a disease of the utmost malignity, it seems to have been altogether overlooked. Its appearances are mild at first, but, without both skill and attention, will end fatally.

(b) All this refers to a lady in Scotland, of singular worth and amiability, who died, but not in consequence of

of curing this disease, is to prevent the mortal period by employing the most powerful stimuli.

CCXIII. The diffusible stimuli are so powerful in removing the inflammation of the gout, that, sometimes, strong drink, undiluted, as wine, and spirits, or the latter diluted with water, as warm as can be borne, have in a few hours removed the most violent fit, and restored the use of the affected foot. And the same *remedies*, as have been mentioned before, are of equal efficacy in removing the general symptoms (i).

CCXIV.

the plan of cure, which this doctrine enjoins, having been followed; especially at the period of the disease when it was most wanted.

(i) Treated in the way, here and formerly (vid. the pref.) mentioned, the most violent degree of the disease always gave way in a few days, and milder cases in as many hours. I never found a single case baffle me but one, where the patient, who, with his valet, had quacked himself into the gout as well as other complaints, and particularly an habitual costiveness, by forcing every passage by the belly, for the space of seventeen years. I was dismissed, without having my directions complied with; and without being allowed to accommodate the remedies to his practice of purging and throwing up injections, so as to endeavour, at least, to prevent or mitigate their

hurtful

CCXIV. The inflammation of the throat, in the gangrenous sore throat, is not, according to the common opinion, a primary affection; but, like every other general asthenic *inflammation*, depends upon the general diathesis, which, in this case, is manifestly asthenic, being a part or symptom of the diathesis, when that has attained a certain high degree.

This inflammation has nothing in common with the sthenic general inflammation, which distinguishes the sthenic inflammatory sore throat, (k) or with the two local inflammations.

CCXV.

hurtful effect. For, it must be observed here, that, as every directly debilitating power is an exciting hurtful means of bringing on any asthenic disease, so the effect of every evacuation, and particularly that by the belly, is well known to be a certain means of bringing on a fit of the gout. Among many other means of inducing that disease, a single dose of Glauber's salt, though that be but a mild cathartic, will bring a fit of the gout on me at any time.

(k) Yet in their systems of nosology, which are laboured volumes of distinctions without differences, begun, within this half century, to be superadded to the former modes of systematizing; which, without this new one, had sufficiently disgraced the art, and needed no more

CCXV. The crowded pustles, in the small-pox, when it is now converted into the confluent disease of that name, that is, into an asthenic general disease, become partakers of the new diathesis, and, instead of sthenic, *which was their first state*, become asthenic; and, as by their local stimulus before, they quickly changed the sthenic into the asthenic diathesis, by means of indirect debility; so they, now, by the debilitating influence of their asthenic nature, confirm asthenia, or a state of debility, over the whole system; they increase it, and carry it quickly on to death (1).

CCXVI.

than the most absurd of the whole, or that the misled fancy of men could invent, to complete, in all its copartments, the vast fabric of error, and particularly in the last of these, that published in Edinburgh, the putrid sore throat, as described (above CCXII) was left out, and the gangrenous, which is that just now alluded to in the text, conjoined with the common sthenic sore throat, though diametrically in its nature opposite to it.

(1) There cannot be a more exquisite stimulus in living nature, than that universal cake of inflamed pustles, which covers the whole surface in a crowded small-pox. It is no wonder then, that, when it is superadded to the ordinary stimulant hurtful powers, to which this disease first owes its violence, and afterwards, that very eruption,

CCXVI. To throw light and illustration upon them, by comparing their respective methods of cure; it is to be observed that the cure in the one case is quite different from that of the other (*m*). The remedies of the distinct small-pox, and of its accompanying eruption, are cold, and whatever, by eva-
cuation or otherwise, debilitates. The reme-
dies of the confluent disease, as well as of its accompanying eruption, are heat, remain-
ing within the indirectly debilitating degree; and all the powers, which stimulate as quickly, and as powerfully as possible, and, conse-
quently, the most diffusible.

the united effect of both should soon pass the whole range of excessive stimulus, and quickly run into the state of indirect debility (see par. CC). Such is the nature and progress of the small-pox, in passing from the sthenic into the asthenic state, that is, from one disease into another of a most opposite nature.

(*m*) The cure of the distinct small-pox is the debili-
tating; that of the confluent, the stimulant plan. The cause of the former is sthenic diathesis, that of the latter the asthenic, occasioned by indirect debility; which is a distinction unattended to in general, and with very bad effect upon the practice. For, when the confluent small-
pox is established, the pustles flat, and signs of mortifica-
tion coming on, the covering the patient with a single
sheet is as common as in the distinct small-pox.

CCXVII. They differ besides in this, that all the hurtful powers in the distinct case are sthenic; all in the confluent asthenic. And this difference equally applies to both diseases, and both eruptions.

CCXVIII. And as the sthenic or distinct pustles have a direct tendency *to produce* a sthenic inflammation, and sthenic eruption; so the tendency of the asthenic or confluent, is *as* directly to gangrene, sphacelus, and death.

CCXIX. The boils, carbuncles, and buboes, which often accompany the plague, and sometimes the typhus fever (n) arise from a contagious matter, taken into the body, and then detained with the perspiratory fluid, under the cuticle, and in the glands. The cause of the detention, and, therefore, of this eruption, is a total cessation of motion in the extreme arteries, especially the glands and perspiratory terminations, upon account of the universal debility, and the very great languor of the heart and arteries. That this is the case, is proved by there being no eruption during the period

(n) See above, the note (c), under par. CCVII.

of predisposition, when some vigour still remains, and, therefore, the perspiration goes on in a certain degree; none in *the cases of* sudden death from the violence of the disease; neither eruption nor disease in all the cases, where these are early prevented by the use of the more powerful stimulants; by the disease being always gentle, and the eruption always sparing, in proportion to the proper management of the stimulant plan of cure. For, whether the suppression of perspiration be the consequence of a very great degree of sthenic diathesis, or of an equal degree of the asthenic as in the present case; all the foreign matter, that should be thrown out of the system along with the perspirable, is, together with it, detained, and so detained below the cuticle, by stagnating, and acquiring a more acrid nature, it produces local inflammation, either of a sthenic or asthenic nature, in proportion to the different nature of each, or rather of the habit of the body.

CCXX. In the same manner is that eruption which diversifies the skin in the gangrenous sore throat to be explained; as well as another, which supervenes upon that state of the small-pox, which by reason of the debility of the

system, would otherwise turn out well ; but if the new eruption be not opposed by the most powerful stimuli, is sure to end in death. Both these eruptions (*o*) are spotted, both of them red ; but the former (*p*) is marked by smaller, the latter by larger spots ; in the latter the colour is a fine scarlet, far exceeding all art, and almost the power of nature herself in other respects (*q*). Both of them are owing to a suppression of the perspiration by the debility that has been mentioned : the former is removed, in practice, by the stimulant plan of cure, which removes all the other symptoms ; in the latter, or *uncommon eruption*, the debility produced of purpose in the preparatory plan of

(*o*) A young child of mine, who had been long weakly, and often, in consequence of that, snatched from the jaws of death by being properly supported, according to the principles of the new doctrine, had been prepared to receive the small-pox, and inoculated. After the eruption was completed, and it was now certain it would be exceedingly moderate, one morning he was brought before me covered over with the appearance of the eruption described in the text.

(*p*) or that in the gangrenous fore-throat,

— (*q*) The beautiful colours sometimes painted in the clouds are often not to be copied by art.

management, to render the small-pox mild, must be opposed, as soon as the eruption appears, and the strength must be restored by the use of the most diffusible stimuli : The pustles, which are both few, and of no consequence, and do not even attain to the measure of actual general disease, and are, therefore, free from all danger, are not to be regarded. If this practice is executed, the recovery is both certain and quick ; *but*, if it be *neglected*, or if a contrary plan of cure be set on foot, death is inevitable (*r*).

CCXXI.

(*r*) It is certain, that the safe conduct of the small-pox depends upon debilitating the habit which is to receive the infection ; and it is as little doubtful that we may carry that operation a great way, by lowering the diet, purging the belly, and applying intense cold to the surface, and, by all means, guarding against all alternation with heat. By this means the phlogistic diathesis, chiefly arising from the ordinary powers, and in part, as it would seem, from the contagious matter, is prevented or removed ; the great flow of the fluids to the surface check'd ; and the diameters of the perspiratory, as well as of all the other vessels, kept open and patulous. But it had been long a question with me, whether this debilitating operation might not be carried too far. If it be certain, as it is, that extreme debility suppresses perspiration, surely

CCXXI. Heat is not peculiar to sthenic pyrexiae (*f*), but belongs also to other diseases of the same stamp. Nor is it so confined to those, as not also to arise in all the degrees of predisposition to those diseases, and

surely the process pushed near to that degree must endanger that event. This phænomenon happening to my child, solved the doubt that I had not yet decided, and it seemed to be in perfect conformity to the principles of this doctrine, to understand, that, as this child had been formerly weak, and, perhaps, still retained some degree of that state, the further weakening him by the preparatory management, for the better regulating this disease, had been carried too far. A surgeon happened to be by when the child was under examination; I asked him if he had ever seen such a case, for I had neither seen, nor heard, nor read, any thing like it. His answer was, that he had seen three, and all of them fatal. I knew how that would happen, that is, that they would continue the debilitating practice they had been following. On the contrary, I ordered the child spirit and water, and a little of an opiate, then restored the meals that had been taken from him, and brought him about to his perfect health (for the small-pox gave no trouble) in twelve or sixteen hours.

(*f*) Pyrexia is the word for sthenic diseases affecting the pulse, called febrile, or fevers, very improperly, while the term fever is reserved for the high asthenic diseases that have been confounded with the pyrexiae.

in proportion to each degree (*t*). But the matter does not end here. The same heat distinguishes all asthenic diseases, whether febrile, which is a distinction without any good meaning, or not *febrile*, and also the predispositions to them all, and *that* in proportion to the degree of debility. There is not a more certain mark of a departing disease, whether sthenic or asthenic, than *a return of* that temperature, which is commonly called cool, to distinguish it from morbid heat.

CCXXII. The heat is then only natural, when neither diathesis is present. From that *point* it increases, through all the degrees of increased excitement, till indirect debility, from excess of stimulus, is established; and it increases in proportion to the degree of

(*t*) That heat takes place in predisposition, is a matter of daily observation. Thus, when a person has no other symptom of disease, it is often remarked, sometimes by himself, sometimes by another, who may have happened to feel his hands, that he is certainly not quite well as his hands are hot. When this heat happens, either in the hands or feet, without any cause to account for it consistently with health, it is a sure prelude of disease, that is, a sure mark of a considerable predisposition to disease: and the kind of disease, of which it is the harbinger, is oftener asthenic than sthenic.

excite-

excitement, rendering the perspiratory vessels always less and less patulous. It also increases through all the degrees of diminished excitement to certain boundaries, which are fixed by a cause by-and-by to be explained, *and increases* in proportion to the degree of decreasing excitement, though the latter all along renders the perspiratory vessels more patulous ; and, thereby, among other effects, diminishes the motion, both of all the vessels, and particularly of the perspiratory.

CCXXIII. When the heat has now been the greatest it can be, and the debility increased in proportion, at last in the extremities, and afterwards gradually in the rest of the body, cold, which is always a bad sign, succeeds to it. In the progress of the debility motion begins to be very languid, first in the extreme vessels of the extremities of the limbs, and then to be destroyed altogether. Hence, as heat, whether in due proportion, or in excess, depends upon the motion of the blood and other fluids, being performed in due proportion, in excess, or to a certain extent, in a deficient degree ; if, therefore, the heat is either nothing, or next to nothing, as in the present case, the effect

effect, together with the cause, by an universal law in nature, ceases. The same thing happens in both extremes of excitability, that is, of excessive abundance in direct, and of nearly a cessation of it, in indirect debility; and so much more *readily will this happen*, because, whatever be its source, debility is always the same,

CCXXIV. Because the excitement in sthenic diseases is for the most part much and equally encreased over the whole body; the heat, on that account, is also equally diffused over the whole. From which fact no cases are excepted, but those, in which, in certain parts, as the stomach, under a strong disposition to vomiting, and, therefore, in danger of falling into indirect debility, indirect debility either actually takes place, from the disease proceeding with an excessive force of stimulus; or direct debility comes on, when the debilitating plan of cure has been pushed beyond the rule. But, so long as the sthenic diathesis is vigorous, and supports a high force of excitement, the heat will almost always be equal.

CCXXV. The same thing happens in moderate debility. Accordingly, through the whole

whole course of predisposition, and in those diseases, where the matter has not gone so far as almost a total cessation of motion, the heat is pretty equal. The effect of cessation of motion has been explained (u). But, before that happens, if any inequality of heat occurs in diseases of moderate debility, as is frequently the case in the hands and feet; the reason of that is, that a greater degree of debility as in cold, labour, and sweat from these, or any other source, and that sweat cold and clammy, has been applied to those parts, than to others. Not only in the gout, but also in other affections both of direct and indirect debility, a burning heat, chiefly distressing to the soles of the feet, torments the patient, especially in walking. That that arises from debility, checking perspiration, is proved by fatigue, cold, and other debilitating powers proving hurtful to it; and heat, rest and other stimulant powers, giving it ease.

CCXXVI. It remains now, that it be explained, how too great excitement, in high sthenic diseases, impairs some functions, but

(u) See above, CCXXIII.

never, by a debilitating operation ; and how too small an excitement in violent asthenic diseases, gives an appearance of encreasing some functions, but always a false one.

CCXXVII. If, in peripneumony, synocha (*x*), and violent rheumatism, the voluntary motions are impaired, *and* to such a degree, that a person can neither use his hands nor his feet, more than a paralytic person ; that that is not owing to debility, that is, diminished excitement whether directly or indirectly (*y*), is evident from this double proof ;
that,

(*x*) or the inflammatory fever,

(*y*) When the excitement is at 40 all the functions are performed in the best and completest manner. Above that there is more force through all the steps of predisposition, but with less durability and steadiness ; which is exemplified by the comparison of hard labourers, who at the same time are well supported, and gentlemen, who live well, without using a proportional degree of labour or exercise to prevent a luxuriant state of vigour. When two such persons are subjected to a comparative trial of their vigour in any exertion, the former will be found to go through the exertion with more steadiness, and to hold out longer and better than the other ; even though his first efforts may have been inferior in force to those of his antagonist. And the reason is evident ; a moderate and proper degree of vigour, will bear an addition of stimulant operation longer than a higher degree of it approach-

that, if the *apparent* debility were real, stimulants would be of service, and debilitating remedies of disservice (z). But the reverse is the truth. For the same debilitating *powers*, which cure the other symptoms of confessed excessive excitement, also remove

ing to morbid state ; because the distance of the excitement from indirect debility, which puts an end to excitement, is greater in the former than in the latter case. The difference in the well-supported labourer is 30 before he can reach an encrease that leads up to 70 ; whereas that of the gentleman is perhaps not more than 20. The exertion in the struggle adds stimulus ; which will be better borne by him who has least and yet enough, than by him who has more, but of a superfluous degree, and more liable to run into the extreme of a cessation of excitement. The effect of the exertion in the labourer will be to carry him soon up, by its stimulant operation, to the degree of excitement where the gentleman began, suppose, that to be 50, and perhaps by and by to 60. But the same stimulus of exertion in the gentleman will have the effect of first mounting up to 60, and by and by to 70, where the excitement begins to cease.

(z) Who would administer wine, opium, and the other high stimuli, whether durable or diffusible, to cure the inability to perform motion in either peripneumony or that rheumatism which is highly sthenic ? Or rather who would think of any other means of removing that symptom, than the debilitating powers, so effectual in removing all the rest, and not less so in removing them ?

this

this indisposition to the performance of motion; and the contrary encrease the affection.

CCXXVIII. Again, in spasms and convulsions, either of the involuntary motions, in the internal parts, as in dyspepsia (*a*), in colic, in dysentery (*b*), in cholera (*c*), in hysteria, in any violent attack either of vomiting or looseness of belly, (great numbers of which affections happen every day, without being distinguished by names); or in the burning affection of the alimentary canal (*d*), which is considered by physicians as an inflammatory affection; or *in affections* of the voluntary motions externally, as in the lock-jaw, in tetanus (*e*), and in many spasms

of

(*a*) in English indigestion.

(*b*) in English the bloody-flux.

(*c*) or that disease the urgent symptom of which is vomiting and purging.

(*d*) See above, CXCVIII. and the annexed notes.

(*e*) Tetanus is a violent spasmodic motion of the muscles of the head, neck, and upper part of the thorax, whereby the head is kept immovably in the same position, in which it had been found upon the coming on of the spasm. The teeth also, from the affection occupying the muscles of the under jaw, are kept immovably locked, and hence the name of lock-jaw. Besides the affection of the muscles, that has been mentioned, there is scarce

of other parts; or in convulsion, epilepsy (*f*), and many other convulsive affections; if these

one muscle in the whole body, free from one degree or other of the affection. Further, there is a most painful feeling over all, but especially in the parts most affected. This disease sometimes happens in cold countries, such as this, in consequence of a wound in any sensible part, or when small bones, as the *osca spongiosa*, are bruised, crushed and dashed into the softer parts. The part of it called lock-jaw is frequently a symptom in fevers. But the disease is more frequent in warmer countries than this, as in the south of Europe, where the excess of heat is liable to run into indirect debility. It is most frequent of all in the Torrid Zone, where indirect debility is the most constant attendant on heat. As a violent and permanent contraction of the muscles was the most striking symptom of it, and systematic physicians supposed every such contraction the effect of an increase of excitement, or, to use their own words, an increased influx of the nervous fluid or nervous power into the parts affected; consequently their indication of cure was to relax the rigid contracted parts. Hence no bounds were set to their emollient relaxing measures. Such were bleeding, other evacuations, and warm bathing. But experience soon taught, that all these increased, instead of removing the disease. Of late opium, because it was thought a sedative, was tried. The trial succeeded. But immense quantities of that medicine were found necessary to effect the complete cure. Laudanum used to be thrown in without measure, or any other rule but to give it on till the disease ceased.

(*f*) or the falling-fickness in English,

functions

functions seem very much encreased; that that is not owing to encrease of strength, that is, encrease of excitement, shall also be proved to any unprejudiced judge by the following two-fold fact; that, if this were a case of really encreased strength, debilitating powers, or the remedies of sthenic diathesis, would remove it; *and* stimulants (g) not proceeding to *their ultimate effect of inducing* indirect debility, but remaining within that range, in which they remove asthenia (b), would encrease it. But to such a fact also is the truth in diametrical opposition (i). For stimulants alone, which remove the other signs of acknowledged debility, also remove those spasms and convulsions; and debilitating powers encrease them or change the disease into a worse (k).

CCXXIX.

(g) keeping within their stimulant range, and

(h) or affections of debility,

(i) Who does not now know, that bleeding, evacuations of other kinds are hurtful, and that stimulants proportioned to the degree of the cause, are the only successful remedies?

(k) A certain gentleman in his desk, speaking of the method of curing epilepsy or the falling sickness, and recommending, among other evacuant and otherwise debilitat-

CCXXIX. Because we know not what contraction is, or almost any function of

litating means, small but frequently repeated bleedings, unguardedly contradicts himself in his very next sentence. "However," says he, "we regular practitioners are liable to be too cautious and even timid sometimes. For I have known a bold practitioner in the country, who cured an epilepsy by very profuse bleeding. In a few months after the patient died of an universal dropsy, but the epilepsy never returned." I would ask this gentleman, what sort of a cure that was, that converted a disease, which may come and go for many years, nay even for a long life-time, into one that, in a very short time, proved fatal? What reason would a podagric have to thank any one, who should convert the gout in him upon any violent attack, into a fatal dropsy? That sort of treatment is not curing a disease but increasing it, and even that to death. The convulsive symptoms of an asthenia may pass away; but the asthenia remains. You may cease to call it epilepsy; but dropsy still shows that the cause of the disease remains, nay is prodigiously increased. This fatal mistake of an increase of the disease upon the whole, for the cure of an inferior degree of it, proceeds from an improper use of directly debilitating powers in place of the proper stimulant ones. But there are cases, where the last, by being carried too far, produce the same fatal mistake. Thus in peripneumony, to get rid of the hard pulse, and the acute pungent pain (see above, CLXXIV. and the notes), the bleedings are carried so far as to produce a fatal hydrothorax, or dropsy of the chest.

living

living systems (*l*) ; we shall not, therefore, wrangle about whether it be an increased or diminished function (*m*) ; but we will by no means give up the point of those spasmodic and convulsive motions being an impaired function (*n*) ; for, if, within certain boundaries,

(*l*) This is, perhaps, the first philosophical performance in which care has been taken to keep clear of abstract causes. The prosecution of them has contaminated almost every department of knowledge that had been treated scientifically. See the Introduction to my Observations on the several erroneous Systems of Physic, &c. where it will appear, that even the great Sir Isaac Newton did not altogether avoid this error, especially in the questions he put, however modestly, with respect to an all-pervading æther ; the wanton and aerial theoretical fabrics that have been raised upon which, have, in spite of Lord Bacon's better directions, disgraced the philosophy of the middle of the eighteenth century. Compare what you will find in that book with the III. Chap. paragraph XVIII. in this.

(*m*) See above, Chap. V. throughout.

(*n*) I know not what the abstract state of muscular fibres is, either when they contract and relax with rapid, violent, and morbid force, or when they remain inmoveably fixed in one forcible permanent contraction : But I know, that nothing but debilitating powers produce them, and nothing but invigorating ones remove them, which is enough for me, who mean to prove myself a sure and cautious observer of the phænomena of nature ; and in my

ries (o), excitement, when increased, produces more strength, and less when it is either diminished without limitation, or ultimately increased; and if every function so arising is properly defined to be either a function increased in proportion to the increase of excitement as contained within its boundaries, or as a function diminished in proportion to the deficiency of the same excitement, without any boundary, or to the ultimate increase of exciting power beyond the stimulant range; consequently, in the last of these cases it is a most proper definition to say, that the function is diminished; and in the first, that it is increased (p).

CCXXX.

practice as a physician, to avoid, after the example of many others, groping in the dark under the guidance of abstract reasoning, but to view every subject of observation, by nature's clearest light.

(o) See above, par. XXIV.

(p) In the spasmodic and convulsive state of the function of motion, when compared with the vigour of the same function in its healthy state, who would say that the former is greater than the latter? The healthy and vigorous state of motion consists not in the degree of contraction, but, with a certain degree of that, in the well proportioned alternation between contraction

and

CCXXX. The notion, therefore, hitherto received with respect to these motions is false.

and relaxation; of which we have proof indisputable in this mode of motion being best performed in that middle state of vigour, that intervenes betwixt the extreme of the healthy, or moderately encreased vigour, and the other extreme of direct or indirect debility. The encrease of vigour and excitement keep pace to a certain extent, even through some degrees of morbid excess of the latter: but a period, and that short of indirect debility, arrives, as in peripneumony, where the excitement is encreased beyond the healthy state, and must be reduced in order to restore the due healthy vigour. There are other cases, as that of mania, or sthenic insanity, where the conjoined encrease of vigour and excitement will still go further. But in every case the encrease of vigour, still judging of it from its effects in the healthy state, ceases before that of excitement; and, perhaps, we may make a step towards finding the boundary, by observing, that the greater the sum total of excess of exciting power is, the sooner does the point arrive, beyond which the vigour does not proceed. In peripneumony it ceases at a certain period of the disease, where the salutary effect of bleeding and other debilitating means shows that the encrease of excitement is still going on. But here the sum total of excitement, considering the state of all the other functions, is greater than in mania, where the function chiefly encreased in vigour is only that of voluntary motion, while all the functions of involuntary motion are very little affected. From this investigation we can clearly discern, that every encrease of excitement

false. It proceeds upon a supposition (*q*), as if the motions proceeded from an excessive influx of the nervous fluid, according to a mode of style which they first held (*r*), or of

leads to a morbid encrease of vigour, and that there is, somewhere or other, a point in the scale of encreasing excitement, and below the point of indirect debility, where the vigour is no further encreased; and this inference arises with respect to the practice, that we should be very observant of both facts, as pointing out a very material distinction in the indications of cure; that in indirect debility being to stimulate, while that at the cessation of vigour is to continue to debilitate till the sum total of excessive vigour be reduced to the proper and healthy. The inability to the performance of motion in peripneumony is an instance of the latter; that of the conversion of the same disease from excess of debilitating cure is an instance of the former.

(*q*) Indeed they have talked so confidently of it, that they may more justly be arraigned of going upon a *petitio principii*, or that error in logic, where a point, chiefly required to be proved, is taken for granted, and made a ground work of other reasoning.

(*r*) From a microscopical observation of Leuenhoeck, where he once thought he saw a hollow cavity in the nerves (but could never see it again, nor any body after him, though that instrument has been infinitely improved since his time), the celebrated Dr. Boerhaave took his noted intertexture of vessels, making the whole mass of living bodies consist of such. The functions were, at that

of the nervous power (*f*), which is now the common language, that is, if it has any meaning,

that time, supposed to depend upon an inelastic fluid secreted in the brain, and distributed in the cavities of the nerves, to every part of the system. Much reasoning has been employed in refutation of that beautiful, though fanciful, system. But the only reason, that should have been employed against it, was to deny the truth of the hypothesis upon which it was built; and that negative argument might have been supported by this positive one, that it is now known, that the nerves are solid substances, and not hollow tubes. The next theory that was taken up was, that though the nerves were solid substances, yet they were porous, and, therefore, fitted to receive into their pores an elastic fluid, like the electrical, the magnetical, and, like, or rather a modification of, the supposed æther of Newton; that this inelastic fluid also floated upon the surface of the nerves, and formed an atmosphere around them, and by it all the functions of living systems, even those of the most perfect, the human, were explained. For a full account of it see the Preface to the Observations on the several erroneous Systems of Physic, from page 19 to page 58. Among other applications of the æther, under the denomination now of nervous power, one was to make its influx into the muscular fibres affected with spasm, or convulsion, the cause of these morbid motions; as its influx, as an inelastic fluid, into the hollow cavities of the nerves, had been before supposed to afford the same explanation.

(*f*) That was their word, after an ingenious philosopher in Edinburgh, whose dissertation upon this subject is given

meaning, from an excessive excitement in the fibres that have been mentioned (*t*) ; and, as according to the phraseology of the logicians, “error draws on error;” so this notion of the abstract cause led to another (*u*) with respect to the operation of opium. And as they senselessly enough supposed excessive motions to be occasioned by an excess in the principle of life, at least in the labouring parts, so they either thought, or taught, that opium possessed the virtue of checking or allaying, as a sedative, those motions, and that contrary to the whole analogy of nature, and the certain proof afforded by all the exciting powers, every one of which has been proved to be stimulant, not one sedative (*x*) ;

but

given at full length in the place of the Observation referred to, had ridiculed them out of their æther.

(*t*) It is here to be observed, that the change of the theory here has led into a vagueness of terms. It might have been proper, had the notion of either an inelastic, or elastic, fluid, been retained, to have called the supposed cause of the function a fluid, and to have talked of its influx as such; but now that we know nothing about it, or whether it has any existence at all, to call it a power, and yet to talk of its influx or efflux, its flowing in or out, is surely vague and incoherent.

(*u*) that is, they supposed the most powerful stimulus,

(*x*) See above, par. XIX. to XXII, with the additions and notes.

but if it were in any respect doubtful, that nothing in nature, at least in those powers, that are commonly applied to animal bodies, is sedative, how can there be any uncertainty of *that point* as to opium, much less, that the contrary conclusion should be held for the truth? Has not it the same effect upon the Turks, that wine has upon us? Or, are we to suppose, that the troops of that people, on their march to the onset of battle, chew opium, with the intention of checking their natural alacrity and propensity to action, and of blunting and depressing their high spirits and courage? If fevers, if the gout, if indigestion, if the colic, if asthma, and the whole train of spasmodic and convulsive diseases, in fine all asthenic diseases, have lately, to the conviction of *every person who gave the subject a due consideration*, and, contrary to the expectation and opinion of *all men hitherto*, been proved to yield to the various forms of opium without difficulty; and if all these diseases, *in which it is serviceable*, have been demonstrated to be affections depending on debility, are we to agree, that opium proves of service, by an operation that is further debilitating, or rather that extinguishes

extinguishes the miserable remains of nature's motions? If the various forms of wine, and other strong drinks, have a very great effect in removing the same diseases, which has likewise been discovered by late experiments, and are, therefore, understood to be beneficial by the same *mode of operation* as opium, are we to agree, that that similitude of operation argues a diversity, nay a diametrical opposition in the nature of the powers that unite, with such harmony, in producing the same effect? Lastly, if it cures diseases, *that depend* upon a confessed deficiency of motion (*w*), equally as those, the motions in which, though seemingly increased, are in reality diminished; what can any person say in objection to so

(*w*) In one fit of the gout, when its paroxysms were allowed to return, in consequence of a disrelish that I had taken for a certain stimulus of the drink kind, and, therefore, all at once abstaining from stimulus, I fell into a state of perfect inaction, and, though without feeling of pain or uneasiness, so devoid of muscular force, or capability of producing any motion or exertion, that even the slight degree of muscular contraction necessary to support my posture in bed failed. In that state, when my eyes were glazed, the whole dangerous paroxysm was removed by changing my drink into a more agreeable one; any strong drink would have answered, and opium best of all.

strong an argument, added to so many and so powerful ones already advanced? In faith, opium is not a sedative; on the contrary, as it is the most powerful of all the agents that support life, and that restore health, and a truly blessed remedy, to the divine virtue of which the lives of so many mortals has been owing, and, in future, will be owing; so it must be acknowledged, that spasms and convulsions, over which it has so great power, do not consist in increased, but diminished excitement, and that opium cures them by the same operation by which it cures any of the diseases depending upon debility.

CCXXXI. Sometimes in diseases there is a preternatural flow of blood. Thus in sthenic diseases blood drops from the nose: it is sparingly expectorated from the lungs, and tinges the urine. The first and last of these three (y) are considered as critical signs; but they have no other meaning than an abatement of sthenic diathesis, and a disposition to indirect debility. This is an effect,

(y) The original is altered according to the translation here.

that,

that, for the most part, soon goes off, leaving behind it a state of convalescence (z), and soon after a restoration of health, seldom passing into an establishment of indirect debility (a).

CXXXXII. Great and continued bleeding discharges, whether from the womb, from the anus, or from around the latter, or by the nose, depend upon pure debility (b).

An

(z) or of recovery,

(a) What follows in the original is erased as not necessary to the sense at present.

(b) These are the several hemorrhages of systematic and nosological authors. They have hitherto been supposed to depend upon sthenic, what they call phlogistic diathesis, and the particular discharge to be supported by an activity, an effort, what they call a molimen haemorrhagicum, in the vessels pouring out the blood and the parts of the vessels immediately behind. Their continuance was accounted for upon the supposition of there being an overproportion of blood in the system, or what is commonly called a plethora; but they are all asthenic diseases, depending upon relaxation and atony both of all the rest of the vascular system, and particularly of the bleeding vessels: (See above, CXXXIV. x.) and, instead of a plethora, there is a penury of blood; all which is proved by the phenomena during the predisposition, when little food is taken in, and less, upon account of the

weakness

An overproportion of blood, distending the vessels beyond bounds, and establishing indirect debility, may sometimes be the primary cause. But, in this case, if no other debilitating power, and particularly directly debilitating, has acceded to the cause; if the discharge be stopt by a stimulant plan of cure; if the body is strengthened, and the laxity of the vessels taken off, the whole affection will soon disappear, and the health be restored. On the contrary, when indirect debility has not preceded, and other directly debilitating powers have been applied; such as those are which have been spoken of; and more *especially*, if the diseases are treated by bleedings and other evacuations, by abstinence, or by vegetable food and watry drink; in such a case the diseases become chronic (*c.*), troublesome, at last direful and

weakness of the digestive organs, is digested; these circumstances are encreased after the arrival of the disease. The pulse withal is weak, small, and frequent; and the patient puny and emaciated. The disease is encreased by bleeding and other evacuations, and both relieved and removed by wine, spirits, and diffusible stimuli; a method of cure which, till within these fifteen years, would have startled all the physicians upon earth.

(*c.*) of long duration,

fatal.

fatal. That they depend upon debility, is proved by the failure of the cure just now mentioned, and by the great success of the stimulant plan. The true cause of bleeding discharge is not plethora, which cannot happen in the case of persons ill nourished, in water drinking, and under the application of other hurtful powers, that equally destroy the tone and density of the vessels (*d*). For as food is nearly the only material, from which blood is formed; how, when it is withheld, in the absence of the cause, can the effect remain? And, if, upon account of the debilitating effect of other hurtful powers, any food that is taken is not digested, how can there be an over proportion, and not a manifest scantiness of blood? But *it may be alledged, that* loss of blood, and every sort of debilitating power, diminish perspiration, and that from that *circumstance* the quantity of blood is increased. How can that happen? The matter, from which the blood is made, *it may be added,* is taken into the stomach, and a smaller quantity of fluid passes off by perspiration. But, *to that it is to be answered, that* in the first place it is not taken in;

(*d*) See above, CXXXIV, and χ .

and next the little that is, is not digested (e); then after the serous part has been separated from the red, will it, if detained and thrown back into the blood, again become blood? If these questions, to which there is no possibility of returning any answer, should seem in any degree ambiguous; are we to believe that one part of the body is in such a state of vigour; as to produce an over proportion of blood, and another in so languid a state, as

(e) No idea in medical writings seems ever to have been formed of the body as a whole. On the contrary, nothing has been more common, than to talk of the functions as operating in a great measure, each from a cause existing within itself, or but slightly and arbitrarily connected with some other. This false notion was carried to its most ridiculous pitch in the doctrine of sympathy, and not rendered much more decent, after the word consent of parts came to be substituted in its place. Thus, the common expressions were the sympathy or consent of the stomach with the head, of the stomach with the face, of the stomach with the external surface, of the latter with the internal, and particularly with the intestines, of the excretions with each other, of the feet with the kidneys, and so forth. It was never dreamed, that there was one over-ruling principle throughout upon which all the functions depended. The stomach, for instance, cannot be strong while the perspiratory organs are weak, and therefore take in and digest too much while they cannot throw out their fluid.

not to be able to carry off by the due outlets its corrupted matter? And must we, giving up our fundamental principle after so complete an establishment of it, allow, that the excitability over the whole body is not the same, uniform, undivided property over all the system; that the powers acting upon it are not the same, finally that matter can be created out of nothing (f)? It is in vain to

talk

(f) It has been proved in the IVth chapter, Part. I. that the excitability is one uniform, undivided property over all, and that, in whatever part of its seat it is acted upon, that action extends instantaneously over all; that though some parts, differently upon different occasions, may be more acted upon than any other, equal in size and nervous importance, that that is only in so insignificant a proportion as to have no effect in constituting an inequality of action in the system. Again the force of the powers that act is a given force, being either weak, in due proportion, or excessive, or weak again from ultimate excess. Their effect then upon the system, which receives their action in every degree in which it is communicated, and that with the utmost exactness, must always be the same, that is, either direct debility, health, sthenic diathesis, or indirect debility. To apply this to the present case, the stomach cannot be healthy, or under a predisposition to sthenic state, and thereby take in and digest, with the help of the other digestive organs, too much of the matter, from which blood is made;

while

talk of the fattening of chickens and cattle by keeping them from exercise and in a state of rest. The condition of health and disease is very different. In the former there is a certain latitude of the strength of the stomach;

while the perspiratory vessels are too weak to perform their function of throwing off their excrementitious matter. On the contrary, the state of the stomach must run through the whole living system. If it can perform its functions properly, or in whatever degree it performs it, all the other organs of digestion, the upper part of the intestines, the biliary vessels, the lacteals, the veins betwixt their common trunk and the heart, the heart through all its cavities, the whole arterial system, and the colourless terminations of that system, whether exhalant or glandular, and the excretory orifices of these, the inhalants, and all the venous blood returned by the arteries, lastly, all the excretaries upon the external and internal surface, all these will perform their functions in the same degree as the stomach whether properly or imperfectly. To promote the most perfect health all the exciting powers must be applied, each in its due proportion. And the want of any one or more may make some odds, which is insignificant to this point. If a person has not had his usual exercise a cheerful glass will prepare him for sleep. For want of the same exercise the appetite will be impaired, but so is the function of perspiration. Too much exercise under heat will impair the appetite, but it also impairs the perspiration after a person gets into a state of rest. In short, any slight inequality from want of any one or more stimuli can be made up by others. See above, par. XLI.

in the latter, and especially when debility is the cause, there is a prostration of strength. In fine, it is an universal and constant effect of all debility, to produce a deficiency of the fluids in the internal parts of the system with a relaxation of the vessels over all, especially about their excretory terminations, and a discharge of the fluids by some out-lets. The death, that happens, during the time of an entertainment, is not to be imputed to an over proportion of blood, which cannot happen in so short a space of time. The drink has no effect in filling the vessels. Nor do any persons, but those, who are under direct or indirect debility, meet with such an end, never those, who have an over proportion of blood; which, as the appetite is gone, and the digestive powers destroyed, cannot be produced (g). In what diseases was it that

plethora

(g) All that follows from "concedendum" at the foot of page 136 in the original is an addition in M. S. The added words are, as follow. "Frustra pullorum & pe-
" coris, per otium pinguefactio jactatur. Alia secundæ
" valetudinis est, adversæ alia conditio. In illa quaedam
" ventriculi virium latitudo est; in hac, maxime que,
" ubi debilitas eam causa continet, illae prorsus frangun-
" tur. Denique omni debilitati proprium est & perpe-
" tuum,

plethora was supposed to take place? Not in those, in which the digestive organs, and those that produce blood, in fine, in which the whole system, are in a state of vigour, where the appetite is very keen, and the digestion most perfectly performed, and the digested matter most completely converted into blood; but in those, in which upon account of the debility propagated over the whole body, all the functions are in a state of languor, and in which the only matter, suited to make blood, is either not applied, or not assimilated. In this way, the gout, apoplexy, epilepsy, palsy, asthma and hysteria, the indigestions of persons, who have been formerly addicted to luxury, in fine, those very diseases, which make our present subject, the hemorrhages, as they are called and falsely defined by that term, lastly the far greatest part of asthenic diseases, have

“ tuum, ut, relaxatis ubique, maxime circa fines excer-
“ nentes, vasis, humores intus deficiant, aliquibus for-
“ minibus diffluant. Mors convivii tempore, sanguinis
“ abundantiae, quæ tam brevi nasci nequit, non est tri-
“ buenda. Nihil valet potio. Nec talem finem, nisi
“ recta eventu de biles, & nunquam sanguine, qui, per-
“ dito cibi desiderio, fractis digerendi viribus, abundare
“ nequit, abundantes sortiuntur.”

been thought, at all times and by all physicians, to depend either upon plethora with vigour, or plethora with mobility. But in fact and truth, that both all the rest of those diseases, and those accompanied with bleeding discharge, depend upon a penury of blood and other debilitating powers, is proved by the constant failure of the antisthenic plan of cure to the great disgrace of the profession, and by the incredible success of the new stimulant plan. And with respect to the bleeding discharges, consider the persons affected with them in the hurtful powers, that precede them, and in the symptoms *that attend them*. During the whole period of predisposition, quite delicate and weakly they have very little appetite for food, and take very little, and what they take, is not digested, and often rejected by vomiting. In their weak state they are not supported by the stimulant *operation* of corporeal, or mental exercise, nor by that of the animal spirits, which are quite puny and dejected, nor by that of pure air, *which they are not able to go out to take*, nor by that of agreeable sensation, nor by that of strong drink, which from the misleading advice of their physicians, they look

look upon as poison, nor by that of the distention of the vessels, which are not sufficiently filled with blood, nor by that of the secretory small vessels, upon account of their sluggish motion, and the stagnation of their degenerated fluids every where, and the direct debility constantly arising from that. What sort of pulse have they? Such, as it is in all diseases of manifest debility, for instance, fevers, (in which last, which is surprising, their favourite plethora, was seldom suspected by them), small, weak and very quick, and almost empty. Upon the whole, what like are their intellectual functions, those of passion and emotion, and their corporeal functions, either in sense, or motion whether of the voluntary or involuntary kind? All weak, all frail, all such, as show, that they have not a third part of life to support them. What, on the contrary, is the state of those, who abound in blood, and yet never experience discharges of it? They are strong and full of vigour in all their functions, with redness of countenance, sparkling eyes, strong, hard and moderately frequent pulse. Their appetite for food is keen, the quantity they take is great and well digested.

As those persons, may experience droppings of blood of no consequence, and yet not often, so they fall into no discharges of blood. And it is in perfect consistency with all, that has been said, *to add*, that the various forms of strong drink, and these particularly, which are the strongest, such as are called spirits, are surprisingly successful remedies of bleeding discharges, in spite of every thing that has hitherto been thought to the contrary, in spite of rooted prejudices : But the preparations of opium (*b*) and of the other diffusible

(*b*) Opium, though much used in the cure of certain symptoms of diseases, was never understood by those physicians, who, in books and lectures assumed to themselves the province of directing the profession of physic. Every property they assigned to it was the reverse of the truth. Instead of allowing it to be the strongest stimulant in nature, they made it a sedative ; and, though they found great difficulty in finding a single sedative more, to help to make out their catalogue of a class of such bodies in nature, they were confident that it was one (see above, CCXXX. and the notes). Another property they ascribed to it was that of bringing on sleep ; whereas, it is the most powerful body of all others in producing and keeping up the watching state (see above, XXX. XXXI. note (*b*)). They also assigned it the virtue of allaying pain, but there is a kind of pain, that it increases, and, besides that, aggravates every other symptom of the disease.

sible stimuli are *still* more successful. This is a fact, that proves to a demonstration, that in

ease. They never could deny, that opium, was exceedingly improper in inflammatory diseases, that is, the several asthenic diseases with affection of a part whether inflammatory or catarrhal. And wherever they found it of service in pain, they might have perceived, that such pain was different from what they called inflammatory, or our general asthenic pain. The truth is ; it is not a palliater of pain, but a remover of its cause, as often as that depends upon debility, while it as certainly aggravates every other. The pains, that opium is calculated to remove, are all these, that depend upon general asthenic affection, as those of the gout, of chronic rheumatism, that of the gangrenous, as well as the putrid, sore throat, all spasmodic and convulsive pains, all pains from pure debility, as in the legs, ankles and soles, or in any part of the skin, nineteen head-achs out of twenty, which are in that proportion asthenic ; the pain of any deep-seated sore or gunshot wound after every degree of asthenic diathesis is removed from the habit. It is an equal remedy against the asthenic inflammation whether local or general, as preventing their tendency to mortification and sphacelus. Nay, when these latter states have come on, it is a most powerful means of removing them, and of correcting the degeneracy ; for the effecting of which the bark had so often failed. All this is the discovery of the author of the Elementa, though the credit of the last and smallest part of it, from their ignorance of the high merit of the whole, they have shewn a disposition to give another, a gentleman and eminent author in London. But a treatise on the

in the bleeding discharges there is no excessive activity, no hemorrhagic effort as it is called, and on the contrary, that there is only a falling off of the natural moving energy. The hemorrhages, then, that have been the subject of so much false explanation, and false denomination, must be rejected from the number of sthenic diseases, and transferred to the asthenic diseases, under the title of Hæmorrhææ.

CCXXXIII. If any person be seized with a cough at first rather dry and bound, then more moist and free, and after that accompanied with a large expectoration, if the hoarseness at first is deep, and afterwards slighter and freer, in proportion as the cough becomes more and more moist ; if the chest all round, over the whole region of the lungs, is distressed with a degree of diffusive pain ; if there is either no vomiting, or what of it there is, seems forced up by the convulsive motion of the cough ending in expectoration, and in such a manner, as either not to re-

turn with a full account of all the virtues of opium will soon be presented to the public, in which all this will be cleared up. Blessed as opium in all these cases is, it is equally bad in all sthenic ones.

turn, or to have no spontaneous tendency to a return ; if the strength is otherwise good, and the pulse strong, full, and more or less hard, *and* not much exceeding the frequency of a healthy pulse : Such a case will be found to be sthenic, and to depend upon heat and every other stimulus (*i*), to be cured by cold and every other debilitating remedy (*k*). The cause of these symptoms is a high degree of sthenic diathesis (*l*), over the whole body, higher on the *external* surface of the body, and especially in the throat, *which is a part of that surface* (*m*). The same symptoms in whatever *morbid* case they occur, are to be explained in the same manner. Consequently, the catarrhal symptoms, which are an inseparable part from the measles, admit pre-

(*i*) See above the following paragraphs CXIII. CXIV. CXII. CXIV.

(*k*) and also CXVII. CXXVIII. CXXXIV. and all the debilitating powers throughout the whole chapter ; while all the stimulant ones in it will be found to be such as contribute according to their degree of stimulus towards the production of the morbid effect, which makes our present subject.

(*l*) or stimulant operation or excessive excitement, or wasted excitability.

(*m*) See above, par. CXIII.

cisely

cisely of the same conclusion ; and, as well as the whole disease, are to be understood to arise from excessive excitement, and to be cured by the debilitating plan. The same is the judgment to be formed of the influensa. In all which cases it is easy to make trial of the truth. Give a glass of wine or brandy, give a little opium ; the hoarseness will increase, the cough will be more hard and bound, the expectoration will suffer a temporary suppression. Give a large draught of cold water, and all the symptoms will be relieved. Often *does it happen that* a person troubled with a cough when he sits down to drink wine, is freed from it in the course of the circulation of the glass (n). The reason of which is, that asthenic diathesis was the cause, which was converted by the drink into a cessation of all diathesis, or into a temporary sthenic diathesis. Often at the end of a debauch in drinking, the cough, and that

(n) Whenever his cough is cured he should stop ; as the carrying the stimulus too far will endanger the return of the cough from a very opposite cause. The cough at first, suppose, to be from an excitement as 26 ; its cure to be brought about by an excitement at or above 40 ; its return to an excitement at or above 60.

very violent, returns for this reason, that the asthenic diathesis has made considerable advances. It will be cured by drinking a tumbler or two of cold water, and drinking no more wine; *which precautions operate by stopping the excess of excitement.*

CCXXXIV. *From the description just now given (o) it appears, that symptoms, commonly supposed to be the same, are however of a diametrically opposite nature (p); which will*

(o) of the nature and cure of the symptoms we have been speaking of, compared with that which is next to be given.

(p) This mistake of symptoms in consequence of judging of their interior nature from the similarity or dissimilarity of their appearance is the false idea, upon which the whole fabric of a department, lately introduced into the art of medicine, has been reared. It is to be observed, that symptoms the most similar to each other in their appearance are, in reality, the most different, and those, that have the least resemblance in their appearance, have the nearest affinity in their interior nature, and indeed are one and the same, with no other difference, but a difference of degree, and even that often very slight, sometimes next to none at all. The great variety of symptoms that distinguish the whole form of asthenic diseases affords as many proofs of the truth of this proposition, as the instances of dissimilarity or difference in opinion are numerous. What is seemingly more opposite than diarrhoea

will be evinced by a fuller explanation. If, therefore, any one has a very great cough, a

rheœa and cholic, than typhomania and coma, than epilepsy and general dropsy, than the cold and hot fit of agues, than spasmodic and convulsive affections compared with those in which there is no fault in the motions either as to excess or regularity, than the several degrees of morbid diminution of menstruation down to the actual suppression, and the several degrees of the morbid encrease of that natural discharge till their flow, at last, attains its ultimate excess both in degree and duration? And, with respect to febrile and non-febrile diseases, what is more similar than a slight synoœa or inflammatory fever and a typhus in the same degree, which, yet, are diametrically opposite both in their cause and cure? What is more dissimilar than the various phænomena of fevers of the intermit- tent kind through all their degrees of intermitting and remitting and those of the more continued kind? And yet they all arise from causes highly debilitating and are effectually removed by remedies equal in their degree of stimulus. In one word, to show the insignificancy of the distinction of diseases into febrile and non-febrile, and, when the degree of debility constituting the cause in both, is considered and compared; is there any reason for separating the high dropsy, the high dysentery, and sinking cholera from their place betwixt intermitting and remittent fevers and the most continued kind? Lastly what two things can be liker one another, than a crowded distinct and confluent small-pox, or than the common inflammatory sore throat and that which was lately described (see above, par. CCXII.) Such have been the ideas,

that

very great expectoration, either at first with hoarseness, and afterwards, through the whole course of the disease, without the hoarseness ; if he is of a very advanced age, or arrived at the last stage of life ; if he is of a weak habit ; if his pulse is neither strong, nor full, and *withal* very quick ; if this con-course of symptoms has been preceded by either direct or indirect debility, as usually happens in *the case of* famine, of water-drinking, of a long course of ebriety, and of *having led* a life of luxury : one may be certain, that all these symptoms are asthenic (q), and to be removed by stimulant remedies.

that have guided the directors of the art of medicine in their inquiries into the natures, causes and cures of diseases. If botanists and natural historians, by all their artificial methods of arrangement, have made little progress in exploring the true nature of their subject, and on the contrary, with scarce a single exception, have confounded it ; if it was ridiculous to unite into one genus a man, a monkey and a bat, how much more absurd was the attempt to arrange the mere qualities of matter in the same way. Yet upon this hopeful employment has John Bull expended vast sums of money, while he left the most solid and important departments of science neglected and covered by the dirt among his feet. We have too little useful science yet, it is time to improve our scanty store (see the Introduction to Observations, &c.)

(q) or depend upon debility,

CCXXXV. The explanation of the dry cough is easy, and such as was formerly given (r). The origin of the cough and expectoration is quite the reverse (s). For, whether the system has been weakened directly or indirectly, as the excitement over the whole body is diminished in the highest degree, as the debility in every part is equi-fite; the consequence is, that in the vascular system the tone, and in proportion the density, is every where diminished; *and the diminution chiefly takes place* in the extreme terminations of the arteries, *that are* most remote from the center of activity, and above *all other parts of the vascular system*, in the perspiratory vessels (t). When *all* this has taken place; the quantity of fluid that is thrown up by expectoration is incredible. Indeed (u) it is great enough, not to be inferior in its degree to the greatest profusion that ever takes place in consumption, and even to exceed it.

(r) See above, par. CLX.

(s) CXXVIII. in the M.S. addition CLXI. and particularly CXXXIV.

(t) LIX. LX. LXI.

(u) though it has never been attended to,

CCXXXVI. The cure of it, however, in all the cases that depend upon direct debility, is by no means difficult (*x*), unless the disease has proceeded beyond the boundary of

(*x*) I have experienced such a case more than once, and have seen and treated it in great numbers. It is sometimes a part of the concourse of symptoms, that form that asthenic case of disease, which is commonly called fever. A gentleman, under or about the thirtieth year of his age, had been ten days in a typhus fever, occasioned by extreme cold, succeeding to the debilitating effects left upon his habit by too great moderation in his diet, and, certainly, not a good choice of the different articles of it. To aid the debilitating effects arising from these, he had experienced all the extremes of heat and fatigue, that fall to a soldier's lot, in very warm countries. He was, over and above, of a small size, slender and emaciated. He had also, from his infancy, been affected with a short cough, sometimes dry, and sometimes with a little expectoration. During the course of his cure, he had been more than once bled, though his disease had ushered itself in by a great profusion of bleeding, which suddenly took him as he was on a journey in a cold day of about 44 miles in a carriage. He was vomited, purged, blistered prodigiously, and glistered. The whole force of the old plan of cure was exhausted upon him, and he so exhausted by it, as to be given up for an incurable of two diseases, a bad fever and rotten lungs. His face was hippocratic, he had the dead rattle, and his cough and expectoration were assiduous. By the stimulant new plan of cure he was put out of danger in ten days, and set upon his feet in as many more.

admitting a cure, and life is now approaching to its end. The cure, however, is a good deal more difficult in the case of indirect debility, and for this good reason, that *there is no other plan of cure but stimulating, to remove a disease occasioned by an excess of stimulant operation (y).* Nay, the same debility, as shall afterwards be observed, produces the same relaxation both of the bronchia and of the rest of the body, *but it does not always produce consumption.* With this profusion of expectoration appearing sometimes in the form of fever (z), sometimes in that of the gout, the physician has often a long struggle, while he employs *his diffusible stimulants, the event of which is such, as to produce a complete restoration of health, and thereby to leave not the least suspicion, of there being any local affection in the lungs, which is so much the object both of the faith and fear of physicians (a).*

I. When

(y) See above, CII.

(z) See the last note (x).

(a) A description of this disease, in which the lungs are supposed to be affected with ulcers or tubercles, has been given in the note under this paragraph at (x). But, as the subject is both as new and interesting as any in

I. When, in all the vessels, the fluids are not agitated by a sufficient action, they are propor-

this work, it may be proper to give a further illustration of it by the exposition of another set of facts. Both in persons liable to the gout, and other asthenic diseases, sometimes of direct and at other times of indirect debility, and especially in those who have been much exposed to cold, without the debilitating effect of the cold being overcome (vide par. CXXII. and MS. addition) by an alternation with, or succession of, heat, and in very many old people, especially among the poorer sort, who have been, and naturally are, much exposed to various debilitating powers, there is often, especially in winter, a very great cough and expectoration. This sometimes goes to such a height as to give suspicion of the affection of the lungs just now spoken of. But the completeness of its cure, which, when it arises from indirect debility, is effected by the use of animal food, avoiding vegetable, and fish, and by good wine and diluted spirits in moderate proportion at a time, but frequently repeated, avoiding claret and other French wines and all sour and all beer drink, unless perhaps a little warm porter in cold weather, and a very moderate use of diffusible stimuli, keeping the feet and the body in general moderately warm; shows sufficiently, that there had been no local affection in the lungs. When the debility of the disease is of the indirect kind, in which the cure is more difficult, there is, still, as little reason to be apprehensive of the pulmonary or any other local affection. For the cure of it also proves the contrary. In it the means of cure are to change the forms of stimulus, and to proceed from the

proportionally more imperfectly mixed, and therefore in a vitiated state. But in the extreme terminations of the vessels, as being at a greater distance from the center of motion, they often, from a total cessation of motion, stagnate, and degenerate into a foreign nature. This is *an effect* not produced by heat alone (*b*) but by cold (*c*), nor only by this,

use of the stronger to that of the weaker, till at length the patient can do without much of the very strong ones. (See above, par. XCIX. and those that follow). When the disease cannot be overcome in that way, the excitability must be understood to be worn out, and life come to its end; but still from general debility, not local disease. For, if ever any local affection does appear, it is always the last effect, not the primary cause. In this way I lost two gentlemen, after having been able to support them for many weeks, when the prognosis upon the common practice did not allow them as many hours. The cause of their indirect debility had been hard drinking. But even in those, who die of a confirmed consumption, there is not often reason for the suspicion of tubercles in the lungs. Their bodies have been opened after death and the lungs found quite sound. And in the dissections, where the tubercles have been found, still they were only an effect.

(*b*) See above, paragraph CXV.

(*c*) See also paragraph XVII.

but

but by all the powers that debilitate in an equal degree (d) (e).

(d) See also CXIX, which compare with par. XXVIII. Nay all the power mentioned in par. XI. and XII. and fully explained in Part Second, Chap. I. throughout.

(e) This from I. is an addition to the original in the following words. “ *Humores in omnibus vasis, minus ab idonea horum actione agitati, pro ratione minus quoque permixti, vitiantur.* In extremis vero vasorum finibus, utpote quæ a motu centro longius distent, delecto sæpe motu stagnantes, in alienam naturam degenerant. Quod quidem, non calor solum, sed & frigus, nec hoc solum, sed & omnia pari vi debilitantia, præstant.” CXV. CXVII. CXXII. CCXXXVI. and I. ad,

C H A P. VII.

Of Sleep and Watching, whether salutary or morbid.

CCXXXVII. AS death finishes the operations of all life, so sleep finishes those of every day: and, as the former is the consequence of a perfect extinction of the excitement, from, either a complete exhaustion or ultimate abundance of excitability; so the latter (*a*) succeeds to a diminished excitement, while the excitability is either diminished, but in such sort that it can be accumulated again, or abundant, in such sort that *the abundance* can be wasted, and the excitement, in both cases, renewed.

CCXXXVIII. Such is the nature of the excitability of animals, that it can neither be deficient nor over-abundant, without detriment; a deficiency producing indirect, and a superabundance, direct debility. And, as any exciting power, carried beyond its boundary (*b*),

(*a*) or sleep,

(*b*) See par. XXVIII.

can produce the former, and the with-holding of any, give occasion to the latter (c); so the same proposition holds good of the excessive or too sparing use of several of them, or of them all (d). Sleep, then, is the effect of the actions of the day, at first giving always more and more excitement, but less and less *in proportion to the continuance of their operation* (e), but in such sort as always to add some *excitement*, till the matter *at last* comes to a point, where the degree of excitement, necessary to constitute the waking state, no longer exists. Of this we have the most certain proof in every day's experience, and in the confirmation of it, which the complete induction of the effects of all the exciting powers affords (f).

Thus,

(c) See par. XXXVIII.

(d) This is completely illustrated through the whole first chapter of the second part, from par. CXI. to par. CXLVII. inclusive. Nay, the proposition is constantly alluded to through the whole that has yet been said, and will be in what remains to be said.

(e) See par. XXXVI.

(f) To illustrate this, let us take the exciting powers one by one, and begin with wine. When a person is insufficiently excited with respect to that stimulus, and rises not, suppose, above 30° in his excitement, a glass

Thus, heat not ultimately excessive, or reduced, by cold, from that excess to its stimulant

carries him up 2° , another 2° more, and so forth, till after five glasses, and their effect in carrying him up to 40° , he finds himself well and vigorous in all his functions. But, still, we are not so flimsily made, as not to bear a little of what is either too much or too little. Suppose him then to take five glasses more, and, consequently, to be raised to 50° , or 10° above the standard. As his spirits, his intellectual, and all his other, functions, were low, while his excitement remained below 40° , so they are all proportionally exalted by the time that his excitement is elevated to 50° . Let him still go on, and his intellectual function will rise still higher ; he will now display the full extent of his genius ; his passions and emotions, of whatever kind, will rise in the same proportion ; he will, in one word, be an example of the effects of Alexander's feast. Suppose, to bring him to all this he has swallowed, besides those he had before, other five glasses. Let him go on, till he has taken five glasses more, and we shall see the effect : In the course of time, employed in taking these, he gradually falls off in his spirits, in his intellectual, and in his corporeal, functions ; his tongue, his feet, his eyes, his memory, his judgment, all, fail him ; he, at last, becomes drowsy, and then falls fast a-sleep. The same is the progress of excitement as it arises from labour or exercise through the day, whether of mind or body. The same is the effect of the stimulus of eating, especially nourishing stimulant things, and in great plenty. Before dinner, the occupations of the former part of the day, are not yet sufficient to prepare one for sleep ; which, however,

lant degree (*g*), and food, and drink, and labour, either of body or mind, and the exercise of passion and emotion, when their stimulus neither stops short of the proper point, nor goes beyond it, all, give a dispo-

ever, after a heavy dinner, will, unless the interference of some other stimulus prevent it, very readily happen to most people, especially to those, whose frailty, from age or any other cause, renders them more liable to be fatigued by the past operations of the day than others. The younger and more vigorous will be able to hold out to the end of the day; when they too, after having undergone the degree of stimulus necessary to give that waste of excitability that disposes to sleep, will be overcome by it. The very flow of the blood in the vessels, and the exercise of the involuntary motions, that keep it up, tend at last to the same effect. The same thing applies to the motion constantly going on in the stomach and intestines, as well as the motions that occur in all the secretory and excretory small vessels. Light, stimulating the eyes, and sound, the ears, and the several substances that act upon the organs of the other three senses, all, tend, by wasting the excitability, to wear down the excitement to that point in the scale where sleep commences. And the process, in every case, is, first a low, then a higher and higher, then the highest, vigour of all the functions; which, again, gradually falls till its termination in sleep. We have, therefore, after viewing their effects singly, to suppose them, in one degree or another, united, and sleep the finishing effect of their united operation.

(*g*) See above, par. CXXII.

dition

sition to sleep. This is the most salutary state of sleep (*b*).

K. Premature, unseasonable, or morbid sleep, is produced by either indirect or direct debility.

A. With respect to the effect of the former, an excessive energy of any one or more of the stimuli (*i*) produces it; accordingly, any one or more of those that have been mentioned, by acting in excess, and wasting the excitability, such as hurried drinking, produce that effect.

M. Of the directly debilitating powers, which produce the same effect; the want, or sparing application, of the powers, which, by a due degree of stimulus, produce sleep, will surprise into a bad kind of it; accordingly, when a person is in that state, that he wants excitement in order to be in health, the defect of light, of sound, and of the various contacts of the bodies that excite the other senses, the defect of both sets of motions, the voluntary and involuntary, as well as of the

(*b*) A little here is added in MS. to the original by way of correction.

(*i*) Of indirect debility in producing premature sleep, see par. CCXXXVIII.

exercise of the mind, of the exercise of passion, of heat, acting in its stimulant degree, and too long continued sleep itself, all these produce hurtful sleep. (k).

CCXXXIX. On the contrary, sound watching is the effect of the suspence of the same diurnal actions during the period of sleep, taking off more and more excitement, most at first, and less and less after, but always adding to the sum of diminution of excitement, and accumulation of excitability ; that is, always continuing to take off stimulus, till the matter comes to the degree of diminished excitement, and encreasing excitability necessary to the watching state. In this way does sleep prepare the system for the watching state ; which is afterwards kept up, for the due length of time, by the several exciting powers, acting through the day, till at

(k) Coma, or an insuperable disposition to sleep, is most commonly owing to the want of most of the stimuli mentioned in the text, as that of food, of wine, at least in the ordinary practice of cure, of good animal spirits, of the power of thinking in a pleasant exciting train, of a due quantity of blood in the vessels, of pure open air, of corporeal exercise, and of the absence of certain stimuli, that otherwise irritate in the weakened state, and produce watchfulness.

last,

last, by a certain failure of their action, sleep is produced again (*l*).

N. Too long or morbid watching is also brought on in a two-fold way, by indirect and direct debility. Thus, intense thinking (*m*), violence of passion in extreme (*n*), ultimate excess in corporeal labour (*o*), unusual and high relaxing heat, debauch in eating and drinking, a great excess in the use of the diffusible stimuli (*p*), a great abundance and velocity of blood; all, or any of these, rising to indirect debility by an ultimate excess in their operation, are notorious for their effect of repelling sleep. Again, cold, not in that extreme degree which immediately precedes death; abstinence from food, or that sort of it that is not sufficiently nourishing, or of sufficient indirect stimulus to produce the requisite distension; weak drink, as tea, coffee, or watery drink, especially when a person has been accustomed to more generous; intermission of

(*l*) See last par. CCXXXVIII.

(*m*) See above, CXXXVIII.

(*n*) See CXL.

(*o*) See CXXXVII. r.

(*p*) See CXXIV. CXXV. CXXVI, &c.

usual labour or exercise, whether of body or mind ; a sense of shame from disgrace, and fear, and grief ; all these, by their operation not sufficiently approaching to indirect debility, produce *an undue or morbid state* of watchfulness.

CCXL. As debility, therefore, whether indirect or direct, or in part a mixture of *both* (*q*), is the cause of sleep, the first of sound sleep, the two latter of an improper or morbid state of that function ; so an excess of the same debility, whether indirect or direct, is also a cause of improper or morbid vigilance. The only salutary sleep is that which is produced by a proper degree of excitement, occasioned by a proper action of the exciting powers upon the excitability ; all the extremes of either excessive sleep, or excessive vigilance, are either so many tendencies to disease, or actual disease (*r*).

A per-

(*q*) See par. XLVII. and the note belonging to it.

(*r*) Too much, or too long continued, sleep, is hurtful, because it implies a suspension of that excitement, to which proper health and due vigour is owing, it is, consequently, a state of direct debility. Too little sleep, or of too short duration, is of equal detriment, as implying a degree of excitability, not sufficiently accumulated to receive a sufficient

A person, fatigued with his usual exercise, is immediately composed to sleep; which, equally, flies from him who has had either less, or more, than that middle degree (f).

CCXLI.

ficient impression from a renewal of the exciting powers. From the former arise most of the complaints of the rich and indolent; from the latter, many of the diseases of the poor and laborious. As the action of the exciting powers should be adapted to the strength, a little indulgence in sleep is the safest extreme to the weak, as in the case of children, and persons labouring under debility.

(f) When a boy, I valued myself much for enduring the fatigue of walking: About the fifteenth year of my age I walked, in a summer day, from Berwick on Tweed to Morpeth, which, with two miles wandering out of the high road, I found to be a journey of fifty miles. But I got not a wink of sleep the whole night, from the excess of the exertion; and the next day, so pained and enfeebled were all my joints, that it was with the utmost difficulty I made out the single stage from Morpeth to Newcastle, which was only a walk of fourteen miles. Some years after that, when I was now arrived at my full strength, and my joints perfectly knit, I walked and wandered in all sorts of ground, in roads and out of them, over smooth and plain, and heathy and mountainous tracts, from four o'clock P. M. to two a clock, P. M. next day, with only an hour's rest, and one hearty meal at betwixt ten and eleven o'clock in the forenoon, when I was now within six miles of my destination. The hills over which I wandered in the course of the night are those

CCXLI. As the effect of both indirect and direct debility is sometimes sleep, sometimes watching, both *of them* unsound, both hurtful; so the cause of bad sleep is either *sort of* debility; without a stimulus acting upon the system in a weakened state, and, thereby, throwing the system into a state of disturbance. The same debility of either kind, with such a stimulus, produces the morbid watching; in which case it is a small stimulus that acts as an irritating power (*t*).

N. Instan-

called Lammer-muir, situated betwixt East Lothian and the Mers: the places I travelled between in this rout were Edinburgh and Duns, the place of the nativity of the celebrated schoolman and metaphysician, John Duns Scotus, and that of my grammar education. In this great exertion I was sustained by a great stimulus, high animal spirits, and love. At the end of my journey, and finding myself among my friends, and the object of my affection, I had vigour enough to dance with the latter. This time I slept well, and was perfectly recruited next day.

(*t*) Volumes have been filled with the doctrine of irritation as a cause of morbid state, and the indications of cure and remedies to remove it have been equally tedious and laboured. In sthenic diseases, phlogistic diathesis, instead of plethora and vigour (for the belief in which two

last

N. Instances of morbid sleep occur in the predispositions to diseases, and the actual diseases, that depend upon asthenic diathesis, and in the ordinary state of intoxication from drinking. But all the exciting powers, when converted into hurtful ones of excessive stimulus, each in proportion to its degree of

last there might have been some foundation in that form of diseases, (see above from CXXXI. to CXXXIV.) has been the universal pathology ; and bleeding, other evacuations, and cold, the universal idea, or, as it is called, indication of cure ; and while they thought of no other method or means of cure for the asthenic form of diseases, the pathology, applied to them, was plethora with vigour or with mobility in other cases, and, in the febrile, irritation. By irritation they explained the startings of the tendons, the restlessness, the frequency of the pulse, the typhomania or constant working, of so frequent occurrence and so noted a symptom in those diseases. But as we have proved, that the reverse of plethora and vigour is the true state of the system in every disease of debility ; so we assert with the same solidity of argument, and the same weight of proof, that irritation, as being considered, either as the cause of morbid watchfulness or of any other symptom, is nothing that requires either evacuant, or any other debilitating remedies, to remove it. It is merely a weakened state of the system, thrown into flutterings from the slightest exertion of the ordinary functions, as when a person falls into tremors from noise, or into a sweat from walking a step or two.

excess,

excess, have the same tendency (*u*). But, when the exciting power proceeds beyond the sleep-inviting point; or when any stimulus, still finding *unwasted* excitability to act upon, continues to act; in that case the watching will be continued with bad effect (*x*).

CCXLII. Instances of morbid sleep occur in all the diseases of indirect debility, and in pains that have advanced to the same *degree of exhausted excitability in the scale* (*y*); as in the

(*u*) A heavy dinner, excessive fatigue from either corporeal or mental labour, a high fit of passion, and heat, are, each of them, noted for giving a disposition to sleep; which is an effect, arising from their high degree of stimulus, hurrying the excitement to that degree of waste in which the sleep-inviting point consists; and it will the more readily take place, that no exciting power, by still finding excitability to act upon, continues, therefore, to act, and prevent the sleep.

(*x*) as in the harrowing watchfulness, which is liable to accompany the phlegmasiæ, or the several sthenic diseases with inflammation of a part.

(*y*) That happens in the phlegmasiæ, where the effect, not only, of the inflammatory pain, but of the whole diathesis, and of every other symptom, as well as that of pain, is to run up into indirect debility. The last part of debility, that ushers in a fit of the gout, is commonly of the direct kind; but the effect of the continuance of the

the several cases of the phlegmasiæ, that arise from the violent progress of the morbid state, or the improper administration of stimulants for the cure; which is particularly exemplified in the dropsy of the breast, that often arises from peripneumony under such management. With respect to sleep from direct debility, women, who have had many deliveries, who have often suckled, as well as all lazy persons, and those, of both sexes, who are addicted to luxury, and whose custom it is to sleep too much, are *all* liable to fall into this sort of morbid sleep.

CCXLIII. When either direct or indirect debility, sometimes produces sleep that gives no refreshment (z), sometimes an ungentle, turbulent waking state, neither of them accommodated to health; as the debility, pro-

pain is often sleep, the origin of which is indirect debility, its consequence an encrease of the disease, and its remedy an interruption of the morbid sleep for the purpose of administering such diffusible, and other, stimuli, as have the effect of removing the debility which occasions both the sleep, and other symptoms of the disease.

(z) which often happens in fevers and many other cases of debility, besides those mentioned in the text (CCXLII.), and ought never to be encouraged, but repelled by every means of exciting the patient.

ductive

ductive of either effect, exceeds that in which sound sleep consists; the use of that degree of stimulus which may repel the former, and convert the latter into sleep, will remove the complaints, and serve for an illustration of the nature of both (a). In asthenic

(a) Let the point of indirect debility, in which sleep consists, be as 15 degrees in a particular scale, and the greater debility, than that which either constitutes morbid sleep or morbid watching, be 20 degrees or upwards in the case of its being indirect, or 10 or downward in the case of its being direct debility. It is evident, that, to bring on salutary watching on the one hand, or salutary sleep on the other, or to convert both into salutary sleep, if that be required by the circumstances, the deficient degree of stimulus must be administered; that is five degrees to bring up the excitement from 10 to 15 degrees, and as many for the purpose of renewing the worn-out excitement by means of a new exciting power which may still find a portion of excitability to act upon, or to remove certain stimuli, which, however slight and mild, are fatiguing and disturbing to the system in its weakened state. Accordingly in fever, when the patient, amidst every sort of directly debilitating powers, had, besides, wanted sleep for ten days, a small portion of an opiate given him every quarter of an hour, in 3 hours time laid him asleep, which, in spite of an urgent cough and profuse expectoration, lasted for 16 hours, and was followed by the most surprising relief. The continuance of this practice, with only an encrease of the doses in pro-

asthenic diseases the watching state for the most part is the consequence of direct debility,

portion as the abundant excitability was gradually worn off, and alternating them with wine and beef soup, in ten days removed all danger. A child of three months had had no sound sleep for ten days, but had cried night and day from a complaint in his belly, which the ordinary practitioners would have called an obstruction in the mesenteric glands. A large dose of the *tinctura thebaica*, for the patient's age, was administered, which laid him in a profound sleep, that continued near 36 hours, and at once removed the disease. Numberless are the cases of a kind similar to this, where the morbid watchfulness was partly from direct, partly from indirect debility, that have been constantly removed by the same practice. A child of 7 years of age, in a fever of great direct debility, in consequence of a most rapid growth happening during the disease, which was not completely removed till near the end of seven weeks, after having been under the disease near a fortnight, was affected with the most constant disposition to sleep, so found that no noise or shaking of his body could waken him. The administration of the opiate repeated in small doses till the effect took place, kept him awake. Some time after, in the course of the same lingering disease, when he had not yet acquired any permanent strength, but was only better supported by the diffusible and other stimuli, than he had been till I was called in, his predominant symptom came to be great watchfulness, which was partly the effect of a certain, though not a great, degree of excitement that the tincture and other cordial powers

lity, with some power acting with slight stimulant effect; the reason of which is, that the disease depends upon more debility than that which constitutes sleep. Hence it comes about, that every thing that stimulates, every thing that raises the excitement as it were to that point, which composes *the system* to sleep, produces that effect by a stimulant, not a sedative, virtue. In a small degree of debility, where the excitement has fallen only a little below the point of sleep, a very small degree of stimulus, such as a little animal food; if the weakness had been owing to vegetable food, such as wine, or any drink of equal power, after a water regimen;

had given him. It, however, induced too great a degree of indirectly debilitating exertion for his still very weak state, and it, therefore, became necessary to give him an addition of excitement to bring him to the state of salutary and recruiting sleep, and thereby to suspend the action of a number of exciting powers, however slight their operation was, which were too much for the enfeebled state of his system. In the cases of children whose diseases are almost all asthenic, and in other diseases of high debility, the instances of such effects of the diffusible stimuli, (for more than one was employed upon this as well as many other occasions) are equally numerous and surprising. In a very large practice I am sure I never, in the very worst cases, lost three patients.

such as consolation in affliction of mind ; heat, when cold has been the debilitating power ; gentle exercise or gestation ; or *the stimulus* of a pleasant train of thought, when one has been deprived of the stimulus of corporeal or mental exercise, is sufficient. In a higher degree of debility (for the curative force should always be adapted to the degree of the disease (*b*)) ; either a proportional higher degree of the stimuli which have been mentioned, or some more powerful one, such as those, which are called diffusible, should be employed.

CCXLIV. In both which cases, the virtue of opium is great ; its virtue, however, is not peculiar to it, or any other than what it possesses in common with all the other stimulant powers, differing only from the rest in the higher degree of its (*c*) virtue.

Thus

(*b*) See above, par. XLIV, and XCII.

(*c*) The notion of some powerful remedies, as opium, mercury, the Jesuits' bark, &c. acting by an operation peculiar to each, and different from every other power in nature, was long prevalent in the schools of medicine. Those they called *specifics* ; an idea, which, like many other of their vague conceptions, was altogether contrary to sound philosophy ; since the more careful our enquiries

Thus in great debility, as in fevers, as in a violent fit of the gout, disturbing with tumultuary disorder the internal parts, and in other similar diseases of debility, in which

into nature's operations are, the more and more reason have we to be convinced, that simplicity and uniformity pervade the whole phenomena of the universe. Accordingly, in the exciting powers that act upon the excitability of our bodies, we find only one action, that of stimulating, varying only in its degree, to take place in all animal as well as vegetable bodies, nay in every thing that we know to possess life in the universe. We also find, to the same extent, only one property in living systems upon which it acts, that is, the excitability; and one effect produced by the mutual relation betwixt them in that respect, to wit, the excitement. Instead of the distracted notion of vortices, or atmospheres in rapid motion, governing the motion of the planets, Sir Isaac Newton found the whole planetary systems of the universe governed in their motions by one single principle. Instead of the infinite difference of habits and temperaments, I have found every individual precisely the same as every other. Whatever produces the gout in one, will produce it in another, prepared to receive its influence. And whatever cures it in any one, cures it also in every other; and so forth with respect to every other disease. The deeper we explore the works of nature, the more will we be convinced of this wonderful simplicity, so that, to a philosopher, all nature would appear the effect of one single instrument in the hand of the all-wise all-powerful creator.

the violence of the disease keeps off sleep ; opium often, after the watchful state has remained many days, brings on profound and sound sleep ; in which case, because the excitability is very abundant, and, therefore, can bear but a very small force of stimulus, we should, on that account, begin with the smallest degree of stimulus, and proceed gradually to more and more (d) ; till at last we arrive at the point of sleep, which will soon happen, as it is placed much within the range of direct debility ; And with respect to coma, or that sleep which is not recruiting ; such is the effect both of other diffusible stimuli and of opium, that it converts morbid sleep into vigilance, vigilance, after a certain space of time, into refreshing sleep, and, in that way, conducts *the patient* safely, gently, and pleasantly, to health. But as the influence of the stimulant operation, that supports excitement, is of so great importance, and as sleep of longer duration than to prove refreshing, may arise even from good remedies, *the rule to be observed when that happens is, when-*

(d) See above, par. CVII,

ever any attack of sleep, upon account of too long a suspension of stimulant action, has been of less service than was expected, to shorten its next attack, and renew the operation of the stimulus.

CCXLV. In asthenic diseases, and those arising from indirect debility, in which sleep is also kept off; in order both to restore it, and remove the other symptoms, and bring about the healthy state, both other stimuli should be employed according to the degree of debility requiring their use, and, when the degree of debility is very considerable, the diffusible stimuli, and among the rest opium, should *not be omitted.*

CCXLVI. These are the times and circumstances of the body in which opium produces sleep. In all the other states either of health or disease, it excites the functions both of body and mind, as well as of passion and emotion; among others it banishes sleep, and produces great activity and vigilance. Thus if any one is under the pressure of sleep without an evident cause, he will by opium be rendered surprisingly sprightly, lively, and vigilant; it banishes melancholy, begets confidence, converts fear into

into boldness, makes the silent eloquent, and dastards brave. Nobody, in desperate circumstances, and sinking under a disrelish for life, ever laid violent hands on himself after taking *a dose of opium*, or ever will. In one word, through all the intermediate degrees of excitement from direct to indirect debility, opium is by far the most powerful of all the agents, and as such must be most hurtful in sthenic diathesis, because, when added to the other stimulant powers, it not only banishes sleep, but is liable to precipitate those diseases from the sthenic state to indirect debility, and from this last to death.

CCXLVII. That the debility, upon which coma depends, is less than that which supports morbid vigilance, is proved, from the former being less dangerous, and more easily removed ; yet, when its duration is in any degree considerable, or when it resembles profound sleep, care should be taken to prevent the hurtful effect it may produce from direct debility (*e*) ; in which case recourse should be had to the different forms of wine and

(*e*) See above, par. CCXLI, and the note under it, as well as this whole chapter.

opium,

opium, with the intention of raising the excitement to that degree, which repels the sleepy state, produces more strength, and facilitates the return of health (*f*).

CCXLVIII. In the gout, in indigestion, of which examples have already been adduced, in diarrhoea and the colic, and many other asthenic diseases, particularly disturbing the alimentary canal, and chiefly affecting those women who are exhausted with frequent child bearing, and long and repeated nursing; it often happens, that there is a strong propensity to sleep, contrary to what happens to the same persons in health, and the period of sleeping attack is prolonged, without the indulgence in it bringing any alle-

(*f*) Physicians have had a more favourable idea of coma, or the sleeping state in fevers, than it merited. Instead of deserving to be looked upon as a positively good sign, ensuring a safe return of the disease, as they did; it was at best but a negative mark, implying that the slight stimuli acting upon the system in a state of high debility, and, therefore, by their operation, slight as it was, increasing the direct debility by the addition of the indirect to it, were kept off and hindered from producing that hurtful effect. Their authority in giving that judgment of it is overthrown by their extreme ignorance of its nature.

viation of the disease. The same thing happens to those who have fallen into indirect debility from drunkenness or any other cause. That this desire for sleep depends upon direct or indirect debility is evident from every thing that gives further debility increasing the disease, and every thing that strengthens, removing it. Among those all strong drink, and the preparations of opium, are peculiarly effectual, and that in proportion to their greater and more diffusible stimulant power, *than that which others possess.*

CCXLIX. Nor is it unconnected with this explanation of *the nature of sleep and watching*, and of both of them being sometimes repelled, sometimes induced, by a certain degree of stimulus (g); that excessive motions, as the spasmodic and convulsive, which have been mentioned (h), such as the quick pulse in fevers (i) and other motions, are removed by an equal force of stimuli, *to that which is required to remove morbid affection without any motions.* Hence

(g) See above, par. CCXLI. where this proposition is reduced to its exact principle.

(h) See above, par. CCXXX.

(i) See par. CLXXIX,

it is plain, that irregular motions are not only not encreased functions (k), independent upon debility, but that they are impaired functions, and consist nearly in the same degree of debility.

CCL. From what has been said, the analogy between watching and life, and sleep and death, and their dependence upon the same laws of nature, that govern all the other functions, clearly appears ; and the most solid probation has been adduced, that the most vigorous vigilance consists in the highest degree of salutary excitement ; that the middle and deep period of sleep depends on the highest debility that is consistent with the healthy state ; that true sleep depends on a middle degree of indirect debility, and that both morbid sleep and morbid watching are the offspring of great debility, whether of the indirect or direct kind.

(k) See above, CCXXIX.

C H A P. VIII.

The Cure of both the Diatheses.

CCLI. AS the cause of both the diatheses is that which has been formerly (*l*) related ; the indication of cure, therefore, to be taken from that is in the sthenic diathesis to diminish excessive excitement over the whole system ; in the asthenic to encrease deficient excitement *likewise over all the system*, till it be brought to that degree, which proves the cause of health.

CCLII. The remedies that produce that effect in *the cure of sthenic diathesis*, are the powers, which, when their stimulant operation is excessive, produce that very diathesis, in this case, acting with that slight and reduced force of stimulus, by which they produce less excitement than health requires, or by which they prove debilitating (*m*).

(*l*) See above, par. CXLVIII.

(*m*) What follows in this paragraph goes out in the original.

CCLIII. The powers which produce the same effect in the asthenic diathesis, are those that, when their stimulus is small, produce that diathesis, *in this case*, exciting with that high degree of stimulus, by means of which they give more excitement, than suits the healthy state, or by means of which they stimulate.

CCLIV. In the asthenic diathesis that temperature (*c*) which is called heat, must by all means be avoided; *and* for this *very good* reason, that the only degree of it which

(*c*) The same order is followed here, that has all along been observed, to wit, that of the enumeration of the powers in par. XI. and XII. and that of the explanation of them, when viewed as the hurtful powers producing either diathesis in Chap. I. Part II. and it will be kept to throughout the whole work. Nothing can be more simple and natural, and better suit the simplicity of the subject, while nothing is more artificial and arbitrary than the arrangements either of Systematics or Nosologists. Just order could never be expected from an erroneous and confused view of the subject to be treated of; while a clear conception of the subject as a whole, infallibly leads to a distinct distribution of the several parts that compose it; so that, what Horace says of language, equally applies to order, and the same thing applies here as to his *Verba & lucidus ordo. Rite paratam rem verba hanc in vita sequentur.*

proves

proves debilitating, that is the excessive to an extreme, cannot be carried to that height, in which it debilitates, without the risk of hurtful or pernicious consequence from the excess of stimulus (*d*).

CCLV. But, when the diathesis, and its cause the encreased stimulus, is gentle in the actual diseased state, there is no occasion for forbidding that degree of heat, which accompanies *the operation of sweating* and pediluvium (*e*) ; because the waste of fluids in the former, and the agreeable sensation in the latter, promise somewhat more advantage, than the moderate *degree of heat employed in this case* threatens disadvantage.

(*d*) See above, par. CXV. Though very intense heat relaxes the simple and induces atony on the living solids, who, in a peripneumony, would think of using it with that view? That disease, from its own violence, often mounts up so high in the scale of encreased stimulus, as nearly to approach the point of indirect debility, and it sometimes actually gains that point. The addition, therefore, of more stimulus from the application of heat, would ensure that effect, and thereby occasion the conversion of the disease into a much worse one, such as hydrothorax, or the dropsy of the breast.

(*e*) Pediluvium is the warm bath of the legs and feet.

CCLVI. In a particular manner, after the application of cold in an intense degree, must *the application of heat* be avoided, because its operation, from the increase of the excitability by cold, becomes more effective (*f*). And the consequence is the more to be dreaded, that, at the same time, other stimuli are usually urgent.

CCLVII. Cold is the beneficial *degree of temperature in the cure of* this diathesis, *but it must be cold* not followed by any considerable degree of heat. That mistake, therefore, in medical practice, of thinking cold hurtful in sthenic diathesis by a stimulant operation, should be corrected; and its benefit in the small-pox is not to be understood to arise so much from its mere debilitating degree, as from avoiding the stimulus of heat after its operation. When the same precaution is employed, the same cold either alone, or in conjunction with other debilitating powers, has lately been found the most effectual remedy of catarrh (*g*).

(*f*) See above, par. XXXVII. 6 and note (*d*).

(*g*) or the common cold in English, a name stampt upon it by the very blunder we have been speaking of.

CCLVIII. From which circumstance, and because a cap of fresh dug up earth put upon the head, has been of service in phrenitis; and that degree of cold, which produces frost and snow, when applied to the naked body, has removed a synocha accompanied with delirium (*b*); and because cold is so efficac-

(*b*) It is called the common inflammatory fever, very improperly, as being no fever, but a general pyrexia, or affection of the whole system, without inflammation or local affection, and producing heat over all and tumultuous effect upon the pulse. Its proper generic name is pyrexia. See above, par. LXVIII. where that appellation is assigned to it; an appellation to avoid mistaking its nature, that should be accurately attended to. Great mischief has been occasioned by this vague term. Thus when a person is said to be affected with a disease; when it is asked what disease it is, and the answer given, that it is a fever, immediately bleeding is thought of, though that, and every, evacuation is as hurtful in proper fever as it may be serviceable in the pyrexia. To give an example of this pyrexia, the particular appellation for which is synocha, or sphenic pyrexial disease; many years ago, a person in the old town of Edinburgh, labouring under it, escaped the vigilance of his nurse; flew naked out of the house in a very keen frost with snow upon the ground, across the streets, passed over into the new town, and from that to the fields beyond it. He soon became sensible of his state, stole into a house next to him, got some clothes thrown about him, and was carried

efficacious *a remedy* in the small-pox; it clearly follows, that the use of cold should be extended to the whole range of predisposition, the whole circle of diseases, depending upon sthenic diathesis.

CCLIX. That no hurtful effect arises from the supposed astringent power of cold in the sthenic diathesis (*i*), is proved by its very high

carried home in a chair, perfectly cured of his disease. From which, and a prodigious number of facts to the same purpose, all concurring in the proof of the debilitating operation of cold, there can hardly arise a doubt in the mind, that in a certain high degree, if it could be conveniently used, or if there were occasion to have recourse to it for want of efficacious remedies, it would at once remove the highest degree of sthenic state that ever occurs in disease, and reduce the excitement from the nearest approach to 70 down to 40. Nay it might run into the opposite extreme and go all the way to death. But we shall, by and by, have occasion to observe, that we are so well provided with effectual remedies as not to be under any temptation of straining this to its height. And we shall also find that a number of remedies in a moderate degree are preferable to any one, or to a smaller number in a higher degree. The discovery of the principle upon which the cure of sthenic diseases turns, has enabled us to render the cure both more complete and exact, than it could have been without principle.

(*i*) I remember, when I was a young student, of hearing the old physicians in Edinburgh very gravely forbid a

high influence, when applied to the surface of the body in the small-pox, in keeping up a freedom of perspiration in proportion to the degree of its application. And its influence in producing atony with proportional laxity of the fibres of the vessels, is in conformity to the same observation (k).

CCLX. For the removal of asthenic diathesis the stimulus of heat is signally useful, and chiefly for the following reason ; that it must be as useful in this diathesis, where the excitement is too low, as it is hurtful in the sthenic, by giving a further encrease of the excitement, too much increased already. Hence in fevers, in the gout, in dyspepsia, in the cholic, in rheumatalgia (l), and in all asthenic diseases, the system is very much cherished by heat, and debilitated by cold :

draught of cold water in an inflammatory pyrexia and even in a common catarrh, for fear it should produce an inflammation in the stomach.

(k) The fibres being relaxed describe a greater cavity, and hence the check given to the perspiration by the contrary effect of the sthenic diathesis in encreasing their density and diminishing their diameters, is taken off.

(l) or what is improperly, as it has been said before, called the chronic rheumatism.

Which, by its debilitating effect, is ranked among the powers that produce the disease (*m*), and is destructive in fevers.

CCLXI. As cold is hurtful in asthenic diathesis in the proportion in which it is serviceable in the sthenic (*n*) ; it is accordingly, for this further reason, to be avoided in diseases of the highest debility, that, like intense heat, it relaxes the extreme vessels, and produces a putrefaction in the fluids (*o*).

CCLXII. The more certainly to moderate the sthenic diathesis while as yet it remains within the range of predisposition, a sparing use should be made of flesh and the preparations from it, and vegetable dishes used with greater freedom. But, when the same diathesis is encreased to the degree, that constitutes disease, abstinence from animal food,

(*m*) No gouty person can bear the operation of much cold, and every one can endure more heat, than most other persons. And the reason is evident: So debilitating a power must, in proportion to its degree, be peculiarly hurtful in all diseases, in which the debility constituting their cause, runs high, as it naturally does in the gout, where it is encreased by the advance of age and other causes, and much more so in fevers.

(*n*) See par. CCLVIII.

(*o*) See above, CXVII.

especially in a solid form, and a free, but still not excessive, use of vegetable matter, especially in a fluid form, are the best means of removing it, as far the management of diet goes.

CCLXIII. In that degree of this diathesis, which does not exceed predisposition, it is proper to avoid seasoning, which is destructive in diseases.

CCLXIV. Watery drink is very suitable to it, and all pure and strong drink hurtful, and that in proportion to the quantity of alkahol that it contains. The latter *sort of* drink, unless *taken* very weak, is destructive in diseases. In the number of which pure water, especially with an addition of *something to acidulate it*, is preferable to small-beer, which a great authority admitted. But the diffusible stimuli in this diathesis are above all others hurtful (*p*).

CCLXV. Since the indirect stimulus of food assists the direct, that is, propagates itself over the whole body; for that reason bounds

(*p*) The last line is an addition in these words, "Ante omnia stimuli diffusiles in hac diathesi nocent."

should be set to the bulk even of the suitable matter (q).

CCLXVI. In every degree of asthenic diathesis, vegetable food should be avoided, and recourse had as soon as possible to that, which consists of meat and animal matter. And, as that can seldom be executed immediately upon account of the weakness of the stomach; the diffusible stimuli should, therefore, be used; such as the *different* forms of wine when the debility is moderate, and opiates when it is greater. *And at the same time*, from the very beginning rich soups should be given in great quantity upon the whole, and a gradual transition made to the use of more solid matter.

CCLXVII. As it is animal matter in this case, that is of service, so the degree of stimulus, that seasoning adds to it, improves its effect (r).

CCLXVIII. During the predisposition to asthenic diseases, watery, cold, acid, fermenting (s) drink is hurtful, and that proportion

(q) See above, par. CXXVII.

(r) See above, par. CXXV.

(s) There is an addition, to the original, in the words, " frigida, acida, fermentiscens."

of pure strong liquor, that the degree of debility requires, is beneficial. But, after the diseases have actually taken place, and have now attained a high degree of vehemence, the same strong drink becomes so indispensably necessary, that excepting the soups, and the still more diffusible stimuli, it is the only *support* required for a long time. There is no occasion for any dread of the indirect stimulus of food, when the matter, which chiefly affords it, that is, vegetable matter, is guarded against (t).

CCLXIX. For the purpose of diminishing the stimulus, which an over proportion of chyle and blood (u), directly applied to a great extent of the body, produces ; the over proportion, when it is very great, should be

(t) Compare this with what was lately said in paragraph CCLXV.

(u) The chyle is the alimentary matter, that has undergone a preparation in the stomach, and an after one in the upper part of the intestinal canal, and, which so prepared, or in part digested, is taken up by the mouths of a number of small vessels that open into the intestines ; these carry it to a great trunk, in which all these vessels, called laetæal, unite, and through that trunk, to be afterwards mixed, first with the venous, and then with all the other blood in succession. Such is the nourishing matter of animals.

removed

removed by abstinence, bleeding, and purging: when it is more moderate, but yet adequate to the effect of producing diseases, the directions lately given (*x*), respecting a moderate diathesis, ought to be observed; that is, we should adhere to *the practice of* vomiting (*y*), and purging from time to time, and to a sparingness in diet. But blood should not be let. And, if upon any occasion, the patient shall give way to a little fulness in his use of food, he should use vegetable matter, abstinence, gentle and frequent exercise, and sweating, and, thereby, keep up a full perspiration.

CCLXX. The same are the means of cure for an excess in the velocity of the blood (*z*), in so far as it depends upon an over proportion: when the velocity depends upon violent motion of the body, the means of lessening it, when the diathesis is so moderate, *as only* to produce predisposition, or a gentle degree of actual disease, are an abatement of exercise, more indulgence in rest, and a reduction of other stimuli. In the

(*x*) See above, par. CCLV.

(*y*) An addition in MS.

(*z*) See above, par. CXXXI. to CXXXIV.

very great diathesis, that which occasions severe diseases, in order to retard the motion of the blood, a point must be made to avoid the stimulus of all the exciting powers, and blood must be taken profusely. *Here it is superfluous to lay down a rule for the observance of keeping the body in a state of rest, as rest, even in spite of the patients, is unavoidable (a).*

CCLXXI. Withdrawing the powers that occasion an over-proportion of the secreted fluids in the excretory ducts, is the best method of removing the stimulus, which that over-proportion, by its distending energy, produces (b). *The cure, therefore, consists in more frequent coition, drawing off the milk, taking in food of a less nourishing nature, and in restoring the perspiration by remov-*

(a) It would be ridiculous to require of a patient in the rage of peripneumony not to run a race, when his real state is, that he cannot move or turn himself in the bed without pain.

(b) In par. CXXXVI. you will find, that the secreted fluids, here alluded to, are the milk, the semen, and the perspirable fluid. As the distention occasioned by the over-abundance produces the morbid stimulus, so the subduction of the fluids must, of course, take it off, and give the desired relief.

ing the sthenic diathesis upon the external surface.

CCLXXII. To remove the debility, or atony and laxity, of the vessels, which is occasioned by a penury of chyle and blood over a very great extent of the system (*c*), first, the strength must be gradually brought back by diffusible stimuli (*d*) and soups; next,

(*c*) How great the space or extent of the system that, in the sthenic diathesis, receives the stimulus of an over-abundance of blood; and, in the asthenic diathesis is subjected to the debilitating power of an under-proportion of the same fluid, may easily be conceived from the well known fact, that there is not a soft part in the whole system, into which the insertion of the point of the finest needle will not draw blood; consequently, the stimulus arising from an over-abundance of blood, as well as the debility arising from too small a quantity, must be the most considerable of all others. Every circumstance here concurs to render the one the greatest sthenic, and the other an equal asthenic, hurtful power. If the force of every stimulus, of every exciting power, be in proportion, first, to the degree of it applied; secondly, to the sensibility of the part on which it acts; and, thirdly, to the extent of that part, it will be no wonder, that these two powers should prove the most formidable of all others. Hence it is, that, in the curative part, bleeding is the most powerful remedy of sthenic, and filling the vessels an equal one, of asthenic, diathesis.

(*d*) which act by giving vigour to the whole system, and more especially to the stomach, with which they come into

next, we should gradually use the latter more sparingly, and solid matter more plentifully; lastly, to give the whole system still more strength, it should be fortified by exercise, and the rest of the durable stimuli; but no further use should be made of the diffusible, than to employ them so long as considerable debility remains (e).

CCLXXIII.

into actual contact. Hence digestion, and the conversion of the matter taken in into good chyle and blood; and hence, at last, the fulness of the vessels first indicated. The process of emptying the vessels in the cure of sthenic diathesis has the advantage of being the first in order; and hence is it that the cure of sthenic diseases is more quickly effected than that of the ^{the} athenic; it being, over all nature, much more easy to take away than replace. See and compare par. CXXVI. and CXXX. and subjoined notes, and a little above, par. CCLXVI.

(e) The sole use, and a great one, of the diffusible stimuli is, in great weakness, where they are only required, to support the system, while it cannot be supported by the ordinary durable stimuli; and, after the excitement is so far restored, that the ordinary supports *are* now sufficient, to lay aside the extraordinary; the continuance of which would now be hurtful, and to manage the convalescent, and restored, state of health by the powers employed in health. When the diffusible are continued longer, they are equally hurtful, and a cause of disease, as they are serviceable when disease requires their support; analogous to wine, they bring about the system in a weakened state

CCLXXXIII. In a weak state both of the vessels and of the rest of the body, every motion of the body, any way considerable, and all other stimuli, which quicken the motion of the blood, and bring on an indirect temporary debility, should be withheld. But, in a case of slighter debility, such motion as does not prove fatiguing, but acts as an agreeable stimulus, and gives recruit, should not be avoided. When a person is recovering from a disease, he should be gra-

to be sustained by its natural and ordinary supports ; but, analogus to it in another respect, when the strength of the system requires not their additional stimulus, they carry it up into indirect debility, and prove the cause of diseases and death. In one word, whatever has been said against the propriety of the use of excessive, and ultimately excessive stimulant powers, the former producing sthenic diathesis, and the latter indirect debility, all that applies, with propriety, for the discontinuance of the use of diffusible stimuli, when the durable are now sufficient for the purposes of the system. And another argument that still remains against the superfluous use of both the diffusibles and strong drink, when debility requires not their use ; which is, that, independent of death, or even diseases, being their immediate consequence, predisposition to diseases must; consequently, as the system must at last be worn by stimuli, all the unnecessary, that is, all that do not contribute to that middle vigour, in which sound health consists, should be avoided.

dually

dually brought back to his usual plan of life; nor should it be forgot, that, till that is done, the health is never completely restored.

CCLXXIV. The debility, which an under-proportion of secreted fluids, or a degenerate, though plentiful state of them, produces in the excretory ducts, is removed by the stimulant plan of cure, which has just now been spoken of (*f*), not by an antiseptic one (*g*).

CCLXXV. The suitable remedy of that *sort of* stimulus, which arises from either violence or assiduity of thinking, is an abatement *in the degree* of thinking, or that high stretch of the intellectual function, whether its degree or frequent *repetition* be regarded, that, by wasting the excitability, proves, at last, indirectly debilitating: Which is a rule, however it may suit the state of predisposition, that is by no means safe, after the disease has once made its appearance, and especially if it is a violent one; because there is no access to any benefit from it, but through the intermediate degrees of that stimulant

(*f*) See above, CCLXXII.

(*g*) See above, CXVII. and CXVIII.

range, which, by encreasing the excitement, already too great, would do mischief (b).

CCLXXVI. In order to cure a slight sthenic diathesis, *such as* occurs in predisposition, and to prevent disease, habitual passion should be avoided ; but the removal of actual disease requires, that every first gust of passion should be prevented. The ultimate excess of passion, upon account of the intermediate danger of stimulating too much, is by no means to be thought of.

CCLXXVII. In so far as debility depends upon excess in mental exertion, or upon a languid state of that faculty, the excess should be diminished, and the languor removed, and an agreeable train of thinking set on foot ; without which latter, however much all the other stimulant powers may have been employed, it may be depended upon, that perfect health, in every respect, will not be brought about (i).

CCLXXVIII.

(b) See above, CCLIV.

(i) The state of the intellectual function has a great influence upon that of excitement ; and, often, when all other stimuli have been applied in due proportion, the deficiency of that single stimulus will point out a want in the proper measure of excitement. There is not a finer stimulus

CCLXXVIII. In every degree of debility that high force of the passions, that produces indirect debility, must be avoided; and

stimulus than the pleasurable feeling arising from a happy train or flow of thinking; hence the high delight, that arises from a flight of wit, or from a pleasant vein of humour; hence all the fine feelings of the belles lettres; hence, in youth, the ardent keenness to be acquainted with the learning, wisdom, and elegant productions of the antients, as well as of those, who have made a distinguished figure in later times; hence the enthusiasm, so natural to the human feelings, to out-strip others in every mental excellency: The arts, the sciences, every department of human knowledge, are all the effects of that intellectual propensity. How happy would it be for mankind were this noble stimulus duly cherished! What benefits, which society is deprived of, would not accrue from a proper cultivation of it! How fine was that feeling in Julius Cæsar Scaliger, when he declared he would rather be the author of Horace's few stanzas of Lydia and Telephus, than accept of the crown of Arragon! What must have been the delight of Pythagoras, when he found out the XLVIIth proposition of the first book of the mathematical elements, commonly called Euclid's? He jumped about in an ecstacy, crying out *Eupnæa*, and was so much more substantial than some of his few brother discoverers, as to possess the means of offering a sacrifice of an hundred fat bullocks to the gods. See Observations on the principles of the old Systems of Physic, from page ix. to xv. of the Introduction. How delightful must the feelings of Horace have been, in whose works every Ode is an effort of the most beautiful, and, frequently, of the most sublime, conceptions

it must not be forgot, that a very small degree of them is sufficient for that effect; we are not to give loose reins to agreeable passions (*k*).

CLXXIX.

tions of human genius! What must have been the fire and force of Milton's soul, in the description that he gives of the appearance of the Son of God in his cœlestial panoply, "*his countenance too severe to be beheld!*" How towering that soul, how exalted that intellect, which the great Marquis of Montrose displayed in a stratagem, which converted into a glorious victory a blunder in one of his officers, that might have proved fatal to both his cause and his glory. When it was whispered to him, standing in the center of his army, that one of his wings was overpowered, he shouts out to the commander in the other: "My Lord Aboyn, shall you and I stand here doing nothing, and M'Donald carry off all the honour of the day!"

(*k*) See above, par. XLIII. and CXLI. Recollect the method prescribed in the XLIII. paragraph of this work for preventing the fatal catastrophe of the Roman woman, when her son, whom she had counted upon, for certain, in the number of the dead, was, contrary to every expectation, presented to her in perfect health. The danger and fatality of her state was, that her excitability was too accumulated, with respect to the stimulus of exciting passion, to bear such a strong impression as that which the presence of her son, in life and health, had made. She was in the state of a famished person, whose accumulated excitability is overpowered by a single morsel of food, or

CCLXXIX. When there is a deficiency in the force of *any of* the passions, as in sadness, grief, fear, terror, and despair, which are only lesser degrees of gladness, confidence, and hope, and imply only a diminution of exciting passions; such deficiency or diminution must be expelled, and the exciting degree of passion recalled; hope and assurance must be infused, and the patient gradually carried up to *feelings of joy*.

II. For there is only a sum total of the passions, which act in the same manner as all the other stimuli, that is, by stimulating, either in excess, or in due, or in deficient, proportion; nay, like the rest, as often as any one is deficient, it, by accumulating the excitability, has the effect of making the other stimuli act more powerfully (1). Take, for instances, the terror of an army before

of a person, who had been long affected with thirst, where the smallest indulgence in drink may prove fatal; or of a person, near starved to death by cold, in whom a rash approach to heat, might induce the same fatal effect; all which are precisely upon the same footing, and equal instances of an excitability too accumulated to bear any degree of stimulus.

(1) See above, par. XXXVII. and the note annexed to it.

the sound of trumpet for the onset of battle, and the courage with which they are afterwards inspired, from the consciousness of their bravery, the General's speech to animate them, or, perhaps, his commemoration of their former brave deeds.

P. An ultimately excessive voluptuousness in the exercise of the senses, as well as the effect of disagreeable objects, presented to them, in asthenic diathesis, should equally be avoided ; and, in the sthenic diathesis, their turbulent force should be guarded against (m).

S. Nothing is better accommodated to the asthenic state, than purity of air ; which, either alone, or conjoined with exercise, must, consequently, be of the greatest benefit to convalescents.

T. Since the matter of contagion, in so far as it has any tendency to produce general disease, produces either sthenic (n), or asthenic, diathesis (o), and acts by an operation similar to that of the general hurtful powers ; *the*

(m) See par. CXLIII. and CXLIV.

(n) as in the small-pox and measles,

(o) as the contagious typhus, the gangrenous sore throat, dysentery, and the plague,

inference to be drawn from that is, that in the cure, general remedies should be employed; and debilitating ones opposed to sthenic, stimulant ones to asthenic, diathesis (p).

¶CCLXXX. These powers, the same in kind with those that produce the diatheses, differing only in degree, and in that respect diametrically opposite, remove the diatheses seldom, and less successfully, one by one; oftener, and more effectually, *when* several co-operate, but, best of all, if all of them be taken together, especially when there is occasion for great assistance.

(p) Par. CXLVII. and CLXXV.